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ANTIBIOTIC AND CHEMOTHERAPEUTIC AGENTS IN INFECTIONS OF THE RESPIRATORY TRACT

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With the advent of additional antibiotics, a wider choice of agents is available, and many more species of micro-organisms are now susceptible to chemotherapy. These newer antibiotics do not lessen the need for definitive diagnosis. If anything, it is even more important to establish the precise indications for these agents and diminish their indiscriminate use. Our objective in chemotherapy is to choose the agent or agents that will be most effective, least likely to produce side-reactions, and most economical to the patient. During the years since the first antibiotics became available, the following developments have necessitated a reconsideration of therapy and indicated that these agents are not an unmixed blessing.

For example, resistance has emerged in certain bacteria not only to one antibiotic but simultaneously to several.[1] It should be emphasized, and it is indeed fortunate, that to date the pneumococci and group A beta hemolytic streptococci, the organisms most commonly found in diseases of the respiratory system, have shown no evidence of development of resistance to the available antibiotics.[2] The hemolytic Staphylococcus aureus and Staph. albus have shown progressive development of resistance to the antibiotics.[1a] At present approximately 60% of the strains are resistant to penicillin by in vitro studies.[3] By the end of 1951 approximately 25% of the strains tested [4] had developed resistance to aureomycin and terramycin and about 17% to chloramphenicol. This is a significant increase in resistance over previous years.[1a]

Another example is the occurrence of superinfection [5] during antibiotic therapy by secondary pathogens (staphylococci and coliform bacilli) and micro-organisms ordinarily not pathogenic (Monilia). It has been noted [6] that strains of Staph. aureus have been cultured with increased frequency from the respiratory tract in patients under antibiotic therapy and that associated clinical evidence of extending bronchopulmonary infection occurred in some of these patients. The overgrowth of ordinarily nonpathogenic micro-organisms, such as Monilia, during antibiotic therapy may lead to serious bronchopulmonary involvement.[7] In vitro studies [5b] show no suppressive effects on this organism by the available antibiotics, and treatment is difficult. Cases of superinfection manifested by pneumonia, bacteremia, and pyelonephritis owing to staphylococci have been reported [8] in patients treated with streptomycin for an original Hemophilus influenzae infection. Although it is difficult to say with certainty, it is probable that the apparent increased incidence of staphylococcic infections and resistant staphylococcic organisms is related to the widespread use of antibiotics. The combination of two antibiotics (penicillin and streptomycin) has been found effective in certain [9] infections (enterococci) not controlled by the administration of one agent. Antibiotic antagonism has been shown experimentally.[10] Clinically antibiotic antagonism has not been demonstrated other than as was suggested in one report.[11]

PRESENT STATUS OF CHEMOTHERAPY FOR RESPIRATORY INFECTIONS

For the most part, mild cases of pharyngitis, nasopharyngitis, tonsillitis, otitis media, peritonsillar abscess, oral abscess, laryngitis, and bronchitis due to gram-positive organisms, such as group A beta hemolytic streptococci, pneumococci, and staphylococci, respond to treatment with penicillin of the aqueous procaine depot type in dosages of 300,000 to 400,000 units intramuscularly every 24 hours, or 600,000 to 800,000 units intramuscularly every 48 hours. Severe or overwhelming infection, advanced age, complications owing to the

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primary disease, serious coexisting noninfectious disease, and the initiation of therapy late in the course of the illness are obvious factors that require that this dosage be given at more frequent intervals, i. e., every 4, 6, 8, or 12 hours. These doses, due to their cumulative effect,[12] rapidly produce high concentrations of penicillin in the blood and dispense with the need of enhancing agents, such as probenecid (benemid®). An alternative regimen with soluble crystalline penicillin in dosages of 100,000 units or more intramuscularly every two to three hours, depending on the severity of the condition, may be employed. Aureomycin, chloramphenicol, and terramycin, 0.5 gm. every six hours orally for mild infections or 1 gm. initially followed by 0.5 gm. every four hours for severe infections, may be expected to be equally adequate in these infections. If the bacteriological diagnosis is uncertain, these agents are to be preferred. In vitro sensitivity studies are essential for infections that do not appear to respond to therapy, especially those due to staphylococci. Clinical studies [13] have indicated that early treatment of group A beta hemolytic streptococcic respiratory tract infections with penicillin lowers the incidence of subsequent acute rheumatic fever and the use of prophylactic penicillin in patients with quiescent rheumatic fever lessens the incidence of recrudescences. Intramuscular dosages of 25,000 units or more of soluble crystalline penicillin every three hours and oral penicillin are rarely indicated if depot penicillin is available. Oral penicillin in dosages of 500,000 units every eight hours can be used if needed, but it is not advisable in severe infections. Oral penicillin should be given at least one hour before a meal or two hours after a meal for maximum absorption.

Diphtheria.—Penicillin, in doses recommended for the more severe infections, should be given but is not a substitute for diphtheria antitoxin. Although the antibiotic does not affect the incidence of complications or mortality, organisms disappear from the nasopharynx slightly earlier than when antitoxin alone is used.[14]

Pneumococcic Pneumonia.—In most cases of pneumococcic pneumonia aqueous procaine penicillin in doses of 300,000 to 400,000 units intramuscularly every 24 hours or 600,000 to 800,000 units every 48 hours is adequate. Severe cases may require this dosage at intervals of 4, 6, 8, or 12 hours. Aureomycin, chloramphenicol, and terramycin in amounts of 0.5 gm. every six hours orally appear to be as effective as penicillin but at present are more costly. Slow resolution or persistent consolidation are not necessarily due to inadequate chemotherapy. Underlying factors, such as pulmonary infarction, neoplasm, tuberculosis, or Friedländer's pneumonia, may be responsible. Further diagnostic procedures are essential.

Sterile pleural effusions occur in approximately 1% of the cases of pneumonia treated with antibiotics. After diagnostic thoracentesis, no specific therapy is indicated other than removal of the fluid if respiratory embarrassment occurs. Pneumococcic empyema rarely occurs if adequate antibiotic therapy has been instituted early in the course of the pneumonia. Therapy consists of continuance of the antibiotic in the dosages recommended for severe infections, aspiration of the fluid, and instillation of 100,000 units of soluble crystalline penicillin into the empyema cavity every 24 or 48 hours in accordance with the character of the exudate.

The lytic enzymes streptokinase and streptodornase have aided greatly in the medical and surgical management of empyema [15] by decreasing the thickness of the exudate. A mixture of approximately 100,000 to 150,000 units of streptokinase and 25,000 to 50,000 units of streptodornase in 20 cc. of sterile isotonic sodium chloride solution is used for a single intrapleural injection. Approximately eight hours after instillation aspiration should be carried out. Subsequent therapy will depend upon the character of the exudate. Enzymatic débridement should be considered as an adjunct and not a substitute for surgery. Surgical drainage or decortication may be necessary if the treatment of acute postpneumonic empyema is inadequate or delayed. Recently the effective use of endobronchial streptokinase and streptodornase in a case of unresolved pneumonia has been reported.[16]

Streptococcic Pneumonia.—Beta hemolytic streptococci cause less than 2% of the pneumonias, and treatment is the same as that of pneumococcic pneumonia. Empyema, an infrequent occurrence, is treated as outlined for pneumococcic empyema.

Staphylococcic Pneumonia.—Penicillin, when used, should be given in the doses recommended for the most severe pneumococcic infections. Since many strains of this organism are resistant to the antibiotics by in vitro tests, sensitivity of the bacteria to penicillin, aureomycin, chloramphenicol, and terramycin should be determined. If the response to penicillin is not satisfactory, aureomycin, terramycin, or chloramphenicol as indicated may be substituted and should be given in oral dosages of 1 gm. initially and 0.5 gm. to 1 gm. every four hours. The severity of this infection is such that, in addition, intravenous dosages of 0.5 gm. of aureomycin every 12 hours or of terramycin every 6 hours may be advisable; if intravenous chloramphenicol is indicated, dosages of 0.5 gm. to 1 gm. should be given every 6 or 4 hours. Combinations of antibiotics in this very serious condition should be based on in vitro studies. Despite experimental studies [10] showing antagonism between penicillin and chloramphenicol, we have found this combination to be effective in severe staphylococcic septicemia. Following the in vitro demonstration of synergy between streptomycin and terramycin, a case of staphylococcic endocarditis was effectively treated with this combination of antibiotics.[17]

Friedländer's (Klebsiella) Pneumonia.—Friedländer's pneumonia accounts for less than 1% of bacterial pneumonias. The early differentiation of this dangerous infection from pneumonia due to gram-positive organisms by smear and culture is extremely important, since it does not respond to penicillin and the prognosis generally is poor. If any suspicion of Friedländer's pneumonia arises, aureomycin, chloramphenicol, or terramycin should be given orally in dosages of 1 gm. every six hours or as indicated by in vitro sensitivity studies. If an early response to therapy is not forthcoming, streptomycin also

should be given in dosages of 0.5 gm. intramuscularly every four hours because of the variable and unpredictable sensitivity of Klebsiella strains to the various antibiotics.[18] If parenteral administration is necessary, 0.5 gm. of aureomycin or terramycin every six hours or 0.5 gm. to 1 gm. of chloramphenicol every six or four hours may be given intravenously.

Hemophilus Influenzae Pneumonia.—H. influenzae pneumonia is treated with aureomycin, chloramphenicol, or terramycin in dosages of 1 gm. initially and 0.5 gm. every four or six hours. Streptomycin, 0.5 gm. intramuscularly every six hours, plus sulfonamides, 0.5 gm. every four hours orally, may be used as a less desirable alternative. Since acute laryngotracheobronchitis in infants and children is frequently caused by H. influenzae, which is not affected by penicillin, the broad spectrum antibiotics should be given in this illness.

MIXED PULMONARY AND OTHER INFECTIONS

Mixed pulmonary infections are most likely to be encountered in chronic suppurative bronchitis, bronchiectasis, aspiration pneumonia, postoperative pneumonia, bronchopulmonary fistula, empyema, and lung abscess. Successful therapy in this group of infections is usually contingent upon many factors in addition to antibiotic therapy. Gram-positive and gram-negative organisms are usually found in the aforementioned pulmonary infections. It is usually essential to do in vitro sensitivity tests on the cultured bacteria. Penicillin therapy generally permits the gram-negative organisms to flourish. Therefore, the broad spectrum antibiotics are preferable, and dosages of 0.5 gm. every four to six hours orally are given. Depending upon the results of cultures and in vitro sensitivity studies, the aerosol forms of penicillin and/or streptomycin given in dosages of 100,000 units and 0.1 gm. respectively four times a day are often helpful supplements to the therapy outlined above. Empyema caused by streptomycin-susceptible organisms may be treated by the supplemental intrapleural instillation of 0.1 gm. of streptomycin and the use of streptokinase and streptodornase in addition to systemic antibiotic therapy. When Pseudomonas aeruginosa not only is the predominant organism present but is resistant to other antibiotics, it may respond to polymyxin B, which can be given in dosages of 2.5 mg. per kilogram or less per day in four doses at six hour intervals intramuscularly.[19] Manifestations of renal toxicity, such as elevation of blood nonprotein nitrogen and albuminuria, must be looked for during treatment with polymyxin B. The early and adequate use of the proper antibiotics may not only abort or minimize suppurative pulmonary lesions but prevent the occurrence of lung abscess in predisposing clinical situations such as coma and convulsions.

Q-fever and psittacosis are effectively treated by dosages of 0.5 gm. of aureomycin, chloramphenicol, and terramycin orally at six hour intervals.[20] These same antibiotics in the same dosages have apparently been of benefit in primary atypical pneumonia.[20a] No effective antibiotic or chemotherapeutic agent is available for the treatment of moniliasis. Many drugs have been studied and found to be ineffective in the treatment of disseminated histoplasmosis. It was recently reported [21] that the ethyl ester of vanillic acid (ethyl vanillate) in oral doses of approximately 250 mg. per kilogram of body weight per day in divided doses was effective in 5 of 12 patients. Penicillin, aureomycin, and chloramphenicol exert an in vitro inhibitory effect upon strains of Actinomyces bovis and A. israeli.[22] Reported clinical experience [23] has been limited but appears favorable. Dosages should be those used for the most severe bacterial infections. Nocardia asteroides, the pathogenic aerobic actinomycete that produces a highly fatal disease, has not been affected consistently by any agent or combination of agents. A recent report [24] showed the inhibitory effect of aureomycin on five strains of Blastomyces organisms as well as the beneficial effect of 3 to 4 gm. orally per day in divided doses in two patients. Treatment was extended for several months. No antibiotic has been found to be effective against the Coccidioides organism.

SIDE-EFFECTS OF THE ANTIBIOTICS

Hypersensitivity phenomena constitute the most common reactions to penicillin and occur in 1 to 2% of patients.[25] If penicillin is required for patients allergic to penicillin G, penicillin O (allylmercaptomethyl-penicillin) in the dosages recommended for penicillin G may be given.[26] Cross sensitization occurs infrequently.[27] Toxicity from streptomycin is usually confined to the vestibular branch of the eighth cranial nerve, while dihydrostreptomycin has an adverse effect upon the auditory branch.[28] These effects usually occur with large doses or prolonged treatment. The most common untoward reactions of aureomycin, chloramphenicol, and terramycin are those related to the gastrointestinal tract, such as nausea, diarrhea, stomatitis, proctitis, and anitis. The incidence of their occurrence is greatest with aureomycin, less with terramycin, and least with chloramphenicol. The nausea and emesis may be controlled by the concomitant administration of milk, food, or antacids (but not aluminum hydroxide gel, since this tends to adsorb the antibiotics and lessen their absorption). A recent report [29] indicates that these latter symptoms caused by aureomycin are considerably decreased if aureomycin calcium caseinate is used. Prolonged administration of these newer antibiotics may produce bizarre reactions.[30] Liver injury may be produced if the daily intravenous dose of aureomycin exceeds 2 gm. A dosage of 40 mg. per kilogram per day is recommended for children when the intravenous route is used. If aureomycin is administered orally, no more than 1 gm. in addition should be given per day intravenously.[31] Reports indicate that depression of the hemopoietic system may occur infrequently following the administration of chloramphenicol.[32] Until the situation regarding chloramphenicol is clarified we do not think that it should be used. The B complex vitamins should be given concomitantly with aureomycin, terramycin, and chloramphenicol, particularly if they are to be given for more than three to five days. This seems to lessen the incidence of stomatitis and proctitis. They are also beneficial if given in these conditions once they have occurred.

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ANTIBIOTIC AND CHEMOTHERAPEUTIC AGENTS IN INFECTIONS OF THE BLOOD STREAM AND HEART

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Recent developments in therapy for infections of the blood stream and heart have proved the value of the sulfonamides and the antibiotics. But it must be realized that their use also serves to complicate the condition in some cases.

BACTEREMIA

Before the introduction of sulfonamide compounds, patients with either staphylococcic or streptococcic bacteremia, who were 50 years of age or older, had only 1 chance in 10 to recover. Intensive use of the sulfonamides raised the rate of recovery from bacteremia to as high as 50 or 60%. Of those types of bacteremia caused by gram-positive micro-organisms, probably the two most commonly encountered are those caused by Micrococcus pyogenes and Streptococcus pyogenes. The etiological organism next in order of frequency is Diplococcus pneumoniae, followed by the indifferent strains and anaerobic strains of streptococci. Bacteremia caused by gram-negative organisms is also encountered fairly frequently. The commonest infection of this type is produced by the coliform organisms. Bacteremia due to Salmonella organisms is not common but is important; likewise, bacteremia caused by Neisseria meningitidis belongs to this group. Bacteremia due to Brucella organisms or to Pasteurella tularensis is not uncommon in certain localities. That caused by Proteus vulgaris or one of the many species of Pseudomonas is seen occasionally, particularly in patients who have recently undergone surgical procedures on the urinary tract or intestine. Bacteremia that occurs after surgical procedures in the upper part of the abdomen, including the biliary tract, is most commonly produced by the coliform organisms. Once the causative organism is isolated, the outcome of therapy of the patient with bacteremia depends on several important factors: (1) early recognition and early adequate treatment, (2) exact knowledge of the sensitivity of the organism to various antibiotics or combinations of antibiotics, (3) recognition and removal of foci of infection, and (4) duration of therapy.

Staphylococcic Bacteremia.—In treatment of bacteremia produced by M. pyogenes, development of increased resistance to therapeutic agents on the part of the organism becomes the main problem. When penicillin was first available, nearly 80% of patients with staphylococcic bacteremia responded to administration of adequate doses. The emergence of resistant strains of bacteria led to the use of aureomycin or terramycin; however, increasing numbers of organisms resistant to these two antibiotics are now encountered. A strain of M. pyogenes is encountered occasionally that is resistant to penicillin, terramycin, and aureomycin, but this strain may be sensitive to chloramphenicol. At the Mayo Clinic, a patient with staphylococcic bacteremia caused by a penicillin-sensitive organism usually receives 1 million units of penicillin daily, administered by continuous intravenous drip, usually into the dorsal veins of the arm or hand. Veins of the lower extremities ordinarily are not used. Administration of penicillin through a polyethylene (polythene®) tube inserted in a vein is advantageous in maintaining a continuous intravenous drip for a period of days. After two sterile cultures of the blood have been obtained, depot penicillin, such as procaine penicillin, given once or twice daily, can supersede intravenous therapy. I do not favor the use of penicillin administered orally in the treatment of bacteremia. Therapy is continued until several blood cultures have failed to reveal any bacteria. The average duration of therapy ranges from 10 to 14 days. If the organism is resistant to penicillin but sensitive to aureomycin or terramycin, one of the latter is given in amounts of 750 mg. every six hours. Administration of aureomycin or terramycin with milk or with sodium bicarbonate reduces the incidence of gastrointestinal irritation. Chloramphenicol is employed only for those patients in whom the organism is found to be resistant to terramycin and aureomycin but sensitive to chloramphenicol. The well-established toxicity of bacitracin and neomycin precludes the use of these antibiotics except when the organism is resistant to all of the above-mentioned antibiotics. Many other antibiotics may be employed in the treatment of some of these cases, provided the organism is sufficiently sensitive; however, adequate therapy with penicillin is preferred because of its low cost to the patient, the lack of serious toxic reactions, and its effectiveness. Indications for use of other antibiotics for infections caused by penicillin-sensitive organisms are: (1) history of allergic or other untoward reactions on the part of the patient to the administration of penicillin, and (2) serious objection to parenteral administration on the part of those patients who prefer antibiotics administered orally. Oral administration of other antibiotics, such as aureomycin or terramycin, may not be feasible when patients with bacteremia are critically ill, particularly those who have just undergone surgery. In this event, the antibiotics must be given by the intravenous route. Aureomycin or terramycin should be administered rapidly when given intravenously. Injection of either of these antibiotics into the veins of the lower extremities is contraindicated, because of venous irritation and the danger of thrombosis. Serious toxic reactions may be encountered if the dose is excessive. The maximal daily dose of either of these antibiotics for intravenous use is 1 gm. daily; this is given in amounts of 500 mg. every 12 hours.

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Streptococcic Bacteremia.—Bacteremia from Str. pyogenes, as well as from nonhemolytic, anaerobic or microaerophilic strains of streptococci, does not constitute a serious problem concerning resistance to penicillin. In fact, all strains of streptococci, with the exception of Str. faecalis, are reasonably sensitive to penicillin. Therefore, in treatment of bacteremia caused by these organisms, I continue to employ the usual dose of 1 million units of penicillin daily. The method of administration is the same as that previously outlined.

Pneumococcic Bacteremia.—The problem of resistance to penicillin has not been a troublesome factor in treating this disease. It is unusual to find a patient with pneumococcic bacteremia who does not respond to adequate treatment with penicillin; however, death may occur because of debility or other complications, even though the blood has been rendered sterile.

Bacteremia from Coliform Organisms.—Uncomplicated bacteremia caused by Escherichia coli or paracolon bacilli responds well to antibiotics. Even before modern antibacterial therapy, a large percentage of patients with this type of infection recovered spontaneously, although convalescence was slow. Many strains of these organisms are sensitive to dihydrostreptomycin sulfate, although during therapy resistance may develop rapidly. Most strains are sensitive to either aureomycin or terramycin. Combined therapy apparently produces best results in treatment of this type of bacteremia. The combination consists of either aureomycin (750 mg. every six hours) or terramycin (750 mg. every six hours) given orally, together with intramuscular administration of 1 gm. of dihydrostreptomycin twice daily. When aureomycin or terramycin must be given intravenously, the total daily dose of either drug is 1 gm. Therapy is continued until at least three or four sterile cultures of blood have been obtained. A practical point concerning these cases should be mentioned. Medical consultation is repeatedly requested concerning patients who pursue a septic course after performance of operative procedures in the upper part of the abdomen, including the biliary tract. When the clinician first sees these patients, empirical therapy with penicillin has already been started, but usually the patient has not responded. These infections more commonly are caused by gram-negative organisms. Under such circumstances specimens of blood are obtained for culture immediately. It is justifiable, however, to institute therapy without awaiting the result of the culture. Treatment consists of administration of dihydrostreptomycin with either aureomycin or terramycin.

Bacteremia Caused by Salmonella.—Best results in the treatment of bacteremia from S. typhosa are obtained by use of chloramphenicol; little doubt remains that this is the antibiotic of choice in the treatment of this infection. It is important to continue therapy long enough to eradicate the infection; 12 to 14 days is the recommended period of treatment. The dose of chloramphenicol usually is computed on the basis of 50 to 100 mg. per kilogram of body weight daily. Therefore, the average daily dose for adults is 3 to 4 gm. Bacteremia produced by other species of Salmonella is not common in general practice but deserves mention. Most infections with Salmonella (salmonellosis or paratyphoid fever) are attributable to either S. paratyphi or S. schottmülleri. Use of antibiotics, including chloramphenicol, is not highly successful in the treatment of this infection; however, at present, it is the consensus that chloramphenicol in the dose recommended is the antibiotic of choice.

Bacteremia Caused by Neisseria.—Many investigators are of the opinion that the chemotherapeutic agent of choice in meningococcic bacteremia consists of one of the sulfonamide compounds, probably sulfadiazine or sulfamerazine. The recommended dose is 5 to 6 gm. per day. If penicillin is employed, the recommended dose is 1 million units daily. In overwhelming sepsis caused by N. meningitidis, it may be well to combine penicillin with one of the sulfonamides. Penicillin is the drug of choice in the treatment of infections produced by N. gonorrhoeae.

Bacteremia Caused by Proteus.—Fortunately, bacteremia due to P. vulgaris is not commonly encountered; however, experience in its treatment with antibiotics is not a completely happy one. Choice of an antibiotic depends entirely on the results of sensitivity tests performed on the particular organism, because different strains of Proteus vary greatly in sensitivity. Use of terramycin occasionally has been successful in the treatment of bacteremia due to P. vulgaris. Some of the strains encountered may be partially sensitive to dihydrostreptomycin. At present I favor a combination of dihydrostreptomycin sulfate administered intramuscularly and terramycin given either by the oral or the intravenous route.

Bacteremia Caused by Pseudomonas.—Bacteremia due to Ps. aeruginosa also is infrequent, and its treatment, likewise, is perplexing. Present experience indicates that polymyxin B (aerosporin®) is the antibiotic of choice in its treatment. The dose usually recommended is 100 to 200 mg. daily. This amount may be dissolved in distilled water or an isotonic sodium chloride solution and given in divided doses four times daily by the intramuscular route. Severe pain at the site of injection is a troublesome side-reaction. Likewise, symptoms of neurotoxicity, including paresthesia and cerebellar ataxia, may occur.

Brucellar Bacteremia.—Bacteremia caused by Br. abortus, Br. suis, or Br. melitensis responds best to combined antibiotic therapy. My colleagues and I now have treated approximately 75 patients with brucellar bacteremia, using the combined form of therapy. Careful follow-up studies reveal that the rate of recovery after such treatment is 95%. In other words, the rate of relapse is 5%. This combined method consists of the simultaneous administration of 3 gm. of aureomycin or terramycin daily by the oral route and 1 gm. of dihydrostreptomycin sulfate morning and evening by the intramuscular route for 12 to 14 days. Neurotoxicity of dihydrostreptomycin sulfate can be disregarded when there is no impairment of renal function and when the preparation is used for this limited period in the recommended dose.

Tularemic Bacteremia.—At present the treatment of bacteremia caused by Past. tularensis is satisfactory. Practically all patients recover after administration of dihydrostreptomycin sulfate, terramycin, or aureomycin. The recommended daily dose of dihydrostreptomycin is 2 gm. by the intramuscular route and that of terramycin or aureomycin is 3 gm. by the oral route.

Other Types of Bacteremia.—Invasion of the blood stream by rickettsiae should be mentioned. All evidence clearly suggests that administration of aureomycin or terramycin in the usual doses will prove effective in the treatment of rickettsiemia. These two antibiotics are preferred to chloramphenicol only because of their lack of toxicity for the hemopoietic system. Invasion of the blood stream by fungi is, fortunately, not a common occurrence. It is most frequently observed in persons who make a practice of self-administration of opiates by the intravenous route. A number of such cases have been observed. Usually the condition is fatal, and none of the antibiotics have proved of value in the treatment of these infections.

Therapeutic Failure.—Too often failure occurs because the patients have not been treated sufficiently early in the course of their infection. Empirical treatment with antibiotics before blood cultures have been obtained from patients in whom sepsis is suspected is to be thoroughly condemned. When sepsis is suspected, empirical therapy is justified and recommended only after one or two blood cultures have been obtained within a few hours before treatment is started. When results of the cultures are reported 24 to 48 hours later, alteration in the antibiotic therapy can then be made, governed by the nature of the organism that has been found. As has been pointed out, however, certain types of bacteremia commonly follow certain types of surgical procedures, and knowledge of this association aids the physician in his selection of the proper antibiotic or combination of antibiotics. Sudden development of acute vegetative endocarditis is another significant cause of therapeutic failure in the treatment of uncomplicated bacteremia. When this occurs, the outlook is poor. The presence of localized abscesses in the brain, liver, kidney, or lung may also at times contribute to failure. Other reasons for poor results include such complications as renal failure, acute cardiac failure, or, on occasion, the development of embolic phenomena and even rupture of mycotic aneurysms. Thus, in many instances, failures are not caused by inability to eradicate the organism from the blood.

The clinician will do well to remember that occasionally he may encounter an infection that is polymicrobic rather than monomicrobic. I have occasionally treated a patient with penicillin for disease due to a penicillin-sensitive organism and suddenly realized that the patient was not doing well, only to find that his blood stream contained another micro-organism that was insensitive to penicillin. In such instances a favorable outcome demands the use of combined therapy. Preference at the clinic is for the combination of penicillin with dihydrostreptomycin or the combination of either aureomycin or terramycin with dihydrostreptomycin in the treatment of infections of the blood stream; however, penicillin is not combined with aureomycin, terramycin, or chloramphenicol. There is no contraindication to the combination of sulfonamide compounds with penicillin.

SUBACUTE BACTERIAL ENDOCARDITIS

Laboratory Aspects.—More than 90% of cases of subacute bacterial endocarditis are due to streptococci that are green producing or indifferent as characterized by their growth on blood agar. This group includes a number of species, the most common of which are Str. salivarius, Str. mitis, and Str. faecalis. The first two species are relatively sensitive to penicillin and do not easily become resistant to it; however, Str. faecalis is considerably more resistant than the others. Not infrequently infection may be caused by streptococci that are fastidious in their cultural requirement. These organisms may be micro-aerophilic or anaerobic. They are often pleomorphic in the primary culture.

Other bacteria that are known to cause subacute bacterial endocarditis include Hemophilus influenzae, H. parainfluenzae, Brucella, N. gonorrhoeae, Micrococcus, and Erysipelothrix. Even fungi have been known to produce the disease. Histoplasma capsulatum and species of Candida have been isolated. On occasion the disease may be caused by two kinds of bacteria. Success in isolating the causative organisms in cases that are suspected to be polymicrobic depends on making repeated cultures on different media. Although this discussion is not primarily concerned with diagnostic procedures, it is important to emphasize that the clinical picture produced by endocarditis caused by infection with Brucella, Micrococcus, or Streptococcus organisms may be indistinguishable; but the chemotherapeutic agents to which each species of organism responds may be quite different. Therefore, the laboratory aspects of the problem hold the key to the successful use of antibiotics. Different strains of the same species may have widely varying sensitivities to the antibiotic agents, and it is therefore essential to successful therapy to know the sensitivity of the specific offending organism.

The plate dilution test is the method used at the clinic for this determination.[1] This method utilizes a series of blood-agar plates in which twofold dilutions of an antibiotic are incorporated, together with a control plate containing no antibiotic. The technician divides each plate into sectors by marking on the back with a grease pencil and numbering the sectors. This allows study of as many as six different organisms on one set of plates. Freshly grown cultures of the organism in question are diluted to a turbidity just visible to the eye, and a loopful of this dilution is spread over the appropriate sector of each plate. The plates are inspected for bacterial growth after 16 hours of incubation, or whenever organisms have grown well on the plate that contains no antibiotic. A record is made of the lowest concentration of antibiotic at which macroscopic growth of each organism is

1. Herrell, W. E., and Heilman, F. R.: Subacute Bacterial Endocarditis, read at Minnesota Heart Association Symposium on Rheumatic Fever, Minneapolis, Nov. 29 to Dec. 1, 1951, to be published.

completely inhibited. A standard strain of bacteria of known sensitivity is inoculated on the first sector of each plate; any significant variation in the end point of growth of this standard strain indicates that the plates were improperly prepared, and they are discarded. Control of each test in this fashion is of considerable value, because errors in determining sensitivity will affect the clinician's choice of antibiotics and, therefore, the welfare of the patient. Use of a solid medium also allows recognition of that circumstance when the vast majority of organisms in a culture are sensitive, yet a few organisms in the culture are resistant. It is important that tests of sensitivity be performed in a uniform manner. A heavy inoculum of bacteria or increase in the time of incubation will affect the result and cause an organism to appear more resistant than it actually is. Such care is particularly important in tests involving aureomycin and terramycin. Since aureomycin is relatively unstable when in solution, plates containing this antibiotic must be prepared just before use and incubation of such plates must not be prolonged. Antibiotics in pure form must be utilized in the tests for susceptibility. Preparations of antibiotics made for intravenous injection are usually satisfactory for this purpose, whereas those for oral use are not. If such pure preparations are not freely available, they usually can be obtained directly from the manufacturer. Stock solutions of standard antibiotics for the test can be kept for some time if well frozen.

Clinical Aspects.—Since most cases of subacute bacterial endocarditis are caused by Str. salivarius or Str. mitis, both of which are sensitive to penicillin, this is the antibiotic of choice in the treatment of endocarditis due to these organisms. In spite of the fact that many strains of Str. faecalis are relatively resistant, many are sufficiently sensitive to justify expectation of occasional satisfactory clinical results when relatively large doses of penicillin are employed. It is not uncommon to find a strain of Str. faecalis whose growth is inhibited by a concentration of penicillin of 3.2 units per cubic centimeter. Likewise, the micro-aerophilic streptococci are reasonably sensitive to penicillin. Recent trends indicate a considerable advantage in combining penicillin with dihydrostreptomycin (combined therapy) for some of these patients. The studies of Hunter [2] emphasize that a real advantage exists in the use of combined therapy in these cases. It may make possible a satisfactory clinical cure after two weeks of treatment, rather than after the four to six weeks of treatment required when the usual dose of penicillin is used alone.

As has already been indicated, a number of species of bacteria other than the commonly encountered streptococci may produce subacute bacterial endocarditis. Selection of the proper antibiotic for eradication of these various organisms is of extreme importance. Infections caused by H. influenzae or H. parainfluenzae should be treated with terramycin or aureomycin administered orally in combination with dihydrostreptomycin administered intramuscularly. Combined therapy is the method of choice in the treatment of endocarditis due to Br. abortus, Br. suis, or Br. melitensis. The most effective combination is terramycin or aureomycin with dihydrostreptomycin. In the treatment of endocarditis produced by N. gonorrhoeae, Micrococcus, or Erysipelothrix, adequate doses of penicillin should result in a satisfactory clinical response. Unfortunately, infections owing to Histoplasma capsulatum and various species of Candida do not respond to antibiotic therapy, and the use of even enormous amounts of antibiotics is not likely to be followed by gratifying results.

Opinions differ considerably concerning the choice of the method of administration of penicillin in the treatment of bacterial endocarditis. I favor use of the intravenous drip method in the treatment of bacteremia and subacute bacterial endocarditis. This method is used until the blood cultures become sterile, at which time the method of treatment is changed to intramuscular administration of either aqueous or depot penicillin. In the treatment of bacterial endocarditis due to Str. salivarius or Str. mitis, which are sensitive in a range varying between 0.01 and 0.1 unit per cubic centimeter, it is seldom necessary to use more than 1 million to 2 million units of penicillin daily. If the endocarditis is due to Str. faecalis, 5 million to 10 million units of penicillin per day administered by intravenous drip usually is the maximal dose. If combined therapy is used with the method of intravenous drip, the patient receives an intramuscular injection of 0.5 to 1 gm. of dihydrostreptomycin morning and evening.

At the clinic, patients have received penicillin through the same polyethylene tube for as long as two weeks. Thus an entire course of treatment may be completed without changing the intravenous needle more than twice. Polyethylene tubes placed in the veins also have been helpful in maintaining the continuous intravenous drip. Heparin sodium is not used at the clinic in the treatment of bacterial endocarditis, except in small amounts designed only to prevent venous thrombosis at the site of injection. For this purpose, 25 mg. of heparin sodium per liter of solution are employed. The total amount of fluid used for administration of the indicated dose of penicillin is seldom more than 2 liters per 24 hours. One liter may be given in the form of isotonic sodium chloride solution and the other in the form of liquid glucose solution. The intravenous drip is best tolerated if veins on the dorsal surface of the hand or arm are used.

If the depot forms of antibiotics (a combination of penicillin and streptomycin) are to be administered from the onset of treatment, I favor the use of a single injection of 2 cc. of the depot preparation every 12 hours. Each 2 cc. of this preparation contains from 500,000 to 600,000 units of procaine penicillin and from 0.5 to 0.6 gm. of dihydrostreptomycin. Therefore, the total daily dose is from 1 million to 1,200,000 units of penicillin and from 1 to 1.2 gm. of dihydrostreptomycin. This form of therapy has been continued for as long as four weeks without evidence of toxicity and with satisfactory clinical results. Satisfactory results also have been obtained from use of combined treatment as recommended by Hunter,[2]

2. Hunter, T. H.: Speculations on the Mechanism of Cure of Bacterial Endocarditis, J. A. M. A. **144:** 524-527 (Oct. 14) 1950.

for only two weeks in those cases in which the causative organism is either Str. salivarius or Str. mitis and is sensitive to the combination.

Quantitative determination of antibiotics in the blood during the course of treatment is helpful but not entirely necessary. As already indicated, if the organism is sensitive, it is seldom necessary to use more than 2 million units of penicillin daily. Values for penicillin in the blood are increased by approximately 1 unit per cubic centimeter for every increase of 1 million units in the amount of penicillin administered per 24 hours. This approximate relationship holds true for a total dosage as high as 10 million units per day. The problem of measuring values for antibiotics in the blood of patients who are receiving multiple antibiotics is difficult and requires considerable aid from the laboratory.

No definitive statements can be made at this time concerning the absolute or ideal duration of treatment in the management of subacute bacterial endocarditis. During the past years it has been the policy at the clinic to treat patients with adequate amounts of antibiotics and to continue therapy, as a rule, for a period ranging from four to six weeks. The recent tendency, however, to use combined treatment and to continue it for no longer than two or three weeks in infections due to Str. salivarius or Str. mitis is important from an economic standpoint. If adequate results can be obtained by use of combined therapy for only two weeks, the discomfort to the patient as well as the cost of the therapy will be considerably lessened. My personal experience with this method has not been great, but evidence is pointing in favor of it.

There can be little doubt that the use of so-called blocking agents to enhance the effect of antibiotics is of some importance in the management of subacute bacterial endocarditis, but in my opinion the use of carinamide or probenecid (benemid®) has not been essential often to successful therapy. Carinamide is a sulfonamide compound. The doses of this drug are relatively enormous, and the results of its administration are somewhat questionable. Probenecid is undoubtedly the blocking agent of choice at the present time. The recommended dose of this latter drug is 0.5 gm. administered four times daily by the oral route. I have found that, if values for penicillin in the blood are low, administration of probenecid definitely will increase the level, perhaps twofold or even more. On the other hand, when a fairly high value for penicillin in the blood already exists, the use of probenecid may increase this level slightly, perhaps as much as 2 units per cubic centimeter of blood, but it will not increase it twofold. Fortunately, probenecid does not inhibit the excretion of streptomycin, and therefore it can be administered without fear of accumulating toxic values of streptomycin in the blood while trying to obtain an increase in the value for penicillin.

In some situations the proper antibiotic has been selected, adequate values in the blood have been obtained, and the patient has been treated for an adequate length of time, but still the treatment in subacute bacterial endocarditis fails. Too often, failure has been attributed to lack of effectiveness of the antibiotic. Admittedly, some organisms may be resistant or may become resistant to the antibiotic, and this in itself may account for failure, regardless of whether small or enormous amounts of antibiotic are used. Furthermore, many so-called relapses or recurrences are not relapses but examples of reinfection. There are other reasons for failure in the treatment of subacute bacterial endocarditis aside from failure of the antibiotic or the development of resistance. Those who have treated this disease are aware of the fact that not infrequently a patient apparently may be doing well, cultures of the blood may be sterile, and progress appears to be satisfactory; but suddenly the patient dies. Occasionally, no reason for this catastrophic ending can be discovered; however, not infrequently evidence may be found of myocarditis, even in the absence of bacteria in the blood stream or on the cardiac valves. Another cause of failure during the course of what appears to be successful treatment is the presence of embolic phenomena or the rupture of a mycotic aneurysm. The embolic processes may be small and insignificant but, nevertheless, fatal. Still another cause for unsuccessful treatment is the onset of congestive heart failure when all seems to be going well. There is no way to prevent any of these several complications; they can only be treated as they occur.

Another interesting and often misleading phenomenon may be observed during administration of antibiotics to patients with subacute bacterial endocarditis. This consists of a persistent or a newly developed febrile reaction in the course of what appears to be successful treatment. In other words, the offending organisms apparently have been eradicated, but the patient has fever. This situation poses a real problem for the clinician, who must decide whether he should continue therapy, increase the amount of antibiotic, or discontinue its administration. Admittedly, penicillin, as it is prepared today, is relatively free of pyrogens; however, when enormous doses of penicillin are used, enough pyrogens may be administered to produce "drug fever." If repeated sterile cultures have been observed, yet the patient continues to experience chills or fever, discontinuance of therapy altogether has often been followed by return of the temperature to normal and recovery of the patient. If it is necessary to continue treatment after this, depot penicillin may be used. Likewise, antibiotics other than penicillin may, on rare occasions, be responsible for drug fever. Finally, fever not caused by infection may occasionally result from a reaction caused by pyrogens in the rubber tubing of the set utilized for intravenous therapy. This is important only when the method of intravenous drip is used for administration of the antibiotics. This reaction can best be avoided by the use of pure rubber tubing.

If a suitable antibiotic or combination of antibiotics is selected and if the dose and duration of treatment are adequate, from 60 to 70% of patients with subacute bacterial endocarditis should recover. When recovery occurs, the physician should remember, however, that these patients have damaged heart valves. The activities of these persons must be limited to a degree commen-

surate with the extent of irreversible cardiac damage that has occurred.

Prophylaxis of subacute bacterial endocarditis should be mentioned. The best way to control this disease is to prevent its development. Obviously, no patient who has previously recovered from bacterial endocarditis should have any operative procedure performed without prophylactic antibiotic therapy. This may consist of administration of penicillin for a day or two before and again after the operation, or perhaps aureomycin or terramycin may be given orally during this period. Furthermore, it is my conviction that no patient who has a cardiac murmur should undergo oral, colonic, rectal, or transurethral operative procedures without the benefit of prophylaxis with antibiotics. Prophylaxis of this type is equally essential for patients who are to undergo operative procedures on the heart or great vessels for such lesions as patent ductus arteriosus, coarctation of the aorta, and valvular deformities. At present, administration of terramycin or aureomycin is preferred for prophylaxis, because of their wide range of antibacterial activity. Use of penicillin will, however, probably be adequate in most circumstances, because of the previously mentioned fact that considerably more than 90% of these infections are caused by organisms that are sensitive to penicillin.

OTHER DISEASES

Rheumatic Fever.—Little doubt remains that the use of sulfonamide compounds has been successful in the prophylaxis of rheumatic fever. The occasional occurrence of suppression of the activity of bone marrow induced by the use of sulfonamides and the lack of toxicity attendant on therapy with penicillin favor the prophylactic use of the latter in the prevention of rheumatic fever. This is one circumstance in which the oral use of penicillin is heartily advocated. There are two aspects to the problem of the prevention of rheumatic fever. One is the prevention of further attacks in patients who have already experienced one or two episodes. An effective schedule for this purpose has been outlined by the American Heart Association and is generally endorsed.[3] For persons who have had one or more previous attacks of rheumatic fever, this schedule consists in the oral administration of 100,000 to 200,000 units of penicillin three times daily. For children, administration should be continued through the end of the period of schooling. For adults, it should be continued for at least five years after the last attack of rheumatic fever. The second phase of the problem is prevention of the initial attack of rheumatic fever. Evidence is accumulating that demonstrates that adequate early treatment of streptococcic infections with procaine penicillin in amounts of approximately 300,000 units daily prevents the initial attack of rheumatic fever in the majority of cases.

Suppurative Pericarditis.—The use of antibiotics is recommended in the treatment of suppurative pericarditis caused by organisms that can be identified and tested for sensitivity against the various antibiotic agents. Penicillin is still probably the antibiotic agent of choice in the treatment of pyogenic coccic infections. It is desirable to treat the patients intensively, using penicillin either by the method of intravenous drip or by the intramuscular route. In addition, the antibiotic should be instilled locally into the pericardial sac. In suppurative pericarditis, pus may be aspirated from the pericardial sac at least once daily in the early stages of the disease. After such aspiration, 20,000 units of penicillin contained in 5 or 10 cc. of isotonic sodium chloride solution may be instilled. The volume of solution to be used depends on the amount of pus withdrawn and on the size of the cardiac silhouette. If the infection is due to organisms that are insensitive to penicillin but sensitive to one of the newer antibiotics, such as aureomycin or terramycin, then these agents may be administered by either the oral or intravenous route. Aureomycin and terramycin are irritating, however, and cannot safely be put into the pericardial sac. Antibiotic therapy has not been of value in the treatment of so-called nonspecific pericarditis.

Wounds of the Heart.—The treatment of wounds and traumatic injuries to the heart is primarily a surgical problem. Administration of penicillin or one of the newer antibiotics, however, is recommended in the prophylaxis and treatment of infected cardiac wounds.

COMMENT

Detailed consideration of the various toxic reactions that may be encountered as a result of the use of antibiotics is not in the province of this presentation; however, toxic reactions incident to the administration of antibiotics are important, and some recent developments in therapy with penicillin deserve comment. When a patient who has previously experienced an allergic reaction to penicillin must receive this antibiotic, several lines of approach are open to the clinician. First, he may successfully treat the patient with one of the hypoallergic forms of penicillin. Second, he may desensitize the patient by administration of a large series of gradually increasing doses of penicillin. This program is combined with administration of one of the antihistaminic compounds. This laborious procedure of desensitizing patients is not often necessary today, because the clinician has at his disposal a number of newer antibiotics. Finally, if a severe allergic reaction to penicillin occurs after treatment is completed, the use of cortisone in amounts of 100 to 150 mg. daily for no more than two or three days may prove highly effective in controlling these reactions. Administration of cortisone during an active infection, however, is not generally recommended.

As was initially pointed out, some of the problems in the use of antibacterial agents in the treatment of these infections of the blood stream and heart are indeed complex. The complexity of these problems arises from the changes that are constantly occurring in the bacterial population, such as the development of resistance, and also from the hypersensitivity of some patients to these agents.

102 Second Ave. S.W.

3. Massell, B. F.: Present Status of Penicillin Prophylaxis of Rheumatic Fever, Mod. Concepts Cardiovas. Dis. **20**: 108-109 (Sept.) 1951.

ANTIBIOTIC AND CHEMOTHERAPEUTIC AGENTS IN DISEASES OF THE GASTROINTESTINAL TRACT

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The rational use of antibiotic and chemotherapeutic agents in intestinal infections, peritonitis, and preoperative preparation of the bowel has reduced morbidity and mortality in a spectacular manner.

INTESTINAL INFECTIONS

Typhoid.—The work of Woodward [1] and others has shown that chloramphenicol (chloromycetin®) is the drug of choice in the treatment of typhoid. When this is used in adequate doses early in the disease and continued for at least 12 days the results are astonishing. Various methods of using the drug have been tried. A highly effective plan of therapy is as follows. The patient is given orally a loading dose of about 50 mg. per kilogram of body weight. For the average adult this represents about 4 gm. of the drug. Daily thereafter until the fever abates he should receive 4 gm. in divided doses at six hour or eight hour intervals. When the temperature has reached normal the dosage should be reduced to about 2 gm. per day in divided doses and continued until the patient has been given chloramphenicol for a total of two weeks. It is well to remember that a relapse of typhoid occurs in about half of the patients treated for 8 days or less with this drug but practically never if the drug is continued for 12 to 14 days. Usually by the fourth day of treatment the fever abates by lysis; the rose spots disappear; headache, cough, and toxemia improve markedly; and convalescence begins. The average duration of fever after chloramphenicol therapy is begun is 3.5 days. Intestinal hemorrhage and intestinal perforation can still occur, in spite of chloramphenicol, as can other complications of typhoid. The availability of this highly effective drug should not lull the physician into a false sense of security and cause him to neglect such fundamental therapy as rest, fluid, and electrolyte balance, nutrition, bland diet, isolation techniques, and, when indicated, blood transfusions. Curiously enough, heavy doses of chloramphenicol for a period of two weeks failed to cure the typhoid carrier state in four chronic typhoid carriers (Woodward and co-workers [1]). This is disappointing, as such cases, though rare, are a source of concern to themselves and to the public and are notoriously difficult to cure. Aureomycin [2] and terramycin [3] have given fairly good results in the treatment of this disease; but some patients fail to respond at all to them, and some respond quite slowly. Neither drug can match chloramphenicol in effectiveness. Streptomycin, penicillin, polymyxin, and the sulfonamides are not effective in typhoid.

Tuberculous enteritis.—In streptomycin [4] the profession now has in its hands a potent weapon against one of the most disabling and dangerous complications of tuberculosis, tuberculous enteritis. In such cases, streptomycin therapy has consistently resulted in striking improvement in the usual symptoms of diarrhea alone or alternating with constipation, abdominal pain and tenderness, anorexia, nausea, vomiting, weakness, fever, and weight loss. When the drug is administered in a total daily dose of 1 gm. or 2 gm., such relief can be confidently expected in a week or less. Since there seems to be practically no therapeutic difference in the two doses cited above and since the latter dose causes vertigo to develop in most patients, the smaller dose should be used. This is given best in divided doses of 0.5 gm. twice a day, since the effective duration of an intramuscular injection of streptomycin does not greatly exceed 12 hours. The duration of treatment has not been settled conclusively, but it appears that the drug should be continued for at least 60 to 120 days. The oral administration of streptomycin in tuberculous enteritis has not approached in therapeutic effectiveness the intramuscular administration. Patients so treated respond very slowly or not at all, and there appears to be little justification for using this route.

Since virtually all tuberculous infections of the bowel are secondary to the ingestion of tubercle bacilli from a focus elsewhere, such as pulmonary caseation and cavitation, the chance of the bowel complication recurring after discontinuation of streptomycin therapy is great if the sputum remains positive. Hence, streptomycin alone can not be expected to cure permanently the intestinal complications of the pulmonary disease and the accepted modes of attack on the latter must not be neglected. The control of the intestinal infection often results in such marked clinical improvement that the patient is able to tolerate major procedures, such as thoracoplasty, which his previous debilitated state had contraindicated.

Amebiasis.—Considerable controversy still exists concerning the efficacy of aureomycin and terramycin in the treatment of amebiasis. Reports of results run the gamut [5] between faint and loud praise. This should not be unexpected, when one considers how difficult it is to tell whether a so-called relapse is truly a relapse or a reinfection, the variability of criteria of cure, the severity of the cases treated, and the daily dose and duration of treatment. There is no doubt in my mind that both of these drugs often cure amebiasis when used in a dosage of 0.25 gm. four times a day for 7 to 10 days and much more often when this daily dose is doubled and the drugs are continued for 2 weeks. They are particularly effective

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Read in the Symposium on Use of Chemotherapeutic and Antibiotic Agents before the Section on Experimental Medicine and Therapeutics at the 101st Annual Session of the American Medical Association, Chicago, June 10, 1952.

1. Woodward, T. E.; Smadel, J. E., and Ley, H. L., Jr.: Chloramphenicol and Other Antibiotics in the Treatment of Typhoid Fever and Typhoid Carriers, J. Clin. Investigation **29**: 87, 1950.
2. Collins, H. S.; Paine, T. F., Jr.; Wells, E. B., and Finland, M.: Aureomycin—A New Antibiotic: Evaluation of Its Effects in Typhoid Fever, Severe Salmonella Infections and in a Case of Colon Bacillus Bacteremia, Ann. Int. Med. **29**: 1077, 1948.
3. Reilly, W. A., and Earle, A. M.: Treatment of Typhoid Fever with Terramycin, J. Pediat. **38**: 428, 1951.
4. Mason, E. F.; Kridelbaugh, W. W.; Crouch, W. H., and Ward, M.: Streptomycin in the Treatment of Tuberculous Enteritis: A Report of 33 Cases, Am. J. M. Sc. **217**: 28, 1949.
5. Crosnier, R.; Darbon, A., and Ducournau, P.: Aureomycin and Terramycin in Acute Intestinal Amebiasis, Presse méd. **59**: 1009, 1951. Hughes, J. D.: Treatment of Amebiasis with Aureomycin: Report of 38 Cases, J. A. M. A. **142**: 1052 (April 8) 1950.

when secondary infection of amebic colon ulcers has occurred, probably because they kill not only the amebas but also the secondary invaders. Both drugs, in my experience, have cured amebic hepatitis, but, while sometimes effective, they should not be relied on solely in amebic hepatic abscess. The latter is still treated best with emetine hydrochloride, 1 grain (0.06 gm.) intramuscularly daily for 8 to 10 days, while an oral amebacide, such as diiodohydroxyquinoline (diodoquin®), 650 mg. after each meal, is given concurrently and continued for a total of 20 days. In spite of these drugs, aspiration or drainage of the abscess is often necessary.

Emetine should be reserved for cases that fall in the following groups: (1) amebic hepatitis or liver abscess; (2) severe dysentery (which is rare in this country); (3) unusual complications, such as amebic granuloma of the colon, amebic abscess of the brain, and amebic postoperative infections following appendectomy and colon or rectal surgery; and (4) symptomatic cases that fail to respond to oral amebacides. The first dose of emetine hydrochloride should be 0.5 grain (0.03 gm.) given deep intramuscularly. Thereafter 1 grain is given daily by the same route, until, in adults, 9.5 grains (0.61 gm.) have been given. If the emergency is not great, the injections should be split as follows: 4.5 grains (0.29 gm.) over a period of 5 days, followed by a rest period of 10 days; then 1 grain daily for 5 more days. When the first dose is given the patient should be given 650 mg. of diiodohydroxyquinoline after each meal for 20 days, as emetine alone has a low rate of cure. If cardiac or muscular disease or pregnancy is present, emetine should be avoided, owing to its potentially toxic effect on cardiac and skeletal muscles, chloroquine phosphate (aralen® diphosphate) being substituted in doses of 0.25 gm. orally after each meal for 10 days or more. Emetine should always be given intramuscularly; the intravenous route has no real advantages and carries a distinct risk.

Streptomycin, penicillin, chloramphenicol, polymyxin, and the sulfonamides have no effect on Endamoeba histolytica but may aid in eradicating other organisms from amebic ulcers. Bacitracin [6] is meeting with some success in the treatment of this disease, but it is too soon to evaluate it in this field. Bismuth glycolylarsanilate (milibis®), carbarsone, diiodohydroxyquinoline, vioform® (5-chloro-7-iodo-8-hydroxyquinoline), chloroquine phosphate, chiniofon, and emetine are still the drugs of choice in amebiasis. If liver damage is present the arsenicals should be avoided. In the average case the following regimen is usually effective. The patient is given these written instructions.

1. Take one carbarsone capsule (3.75 grains, or 0.24 gm.) after each meal for 10 days.

2. Then take one diiodohydroxyquinoline tablet (650 mg.) after each meal for 20 days.

3. Then take one carbarsone capsule (3.75 grains) after each meal for 10 more days.

4. Four weeks after the last dose of medicine the stools should be checked to see if you are cured.

5. Have all members of your family checked for amebas.

6. Do not eat raw fruit or raw vegetables in public.

7. Do not drink alcoholic beverages while being treated.

8. Salads may be eaten at home if they are soaked for 30 minutes in salt water before eating, using 1 tbs. salt to 1 qt. (0.94 liter) water.

9. If these medicines cause nausea or cramping take 1 tsp. of sodium bicarbonate in a glass of water with each dose; if that fails to control the side-effects of the drugs take 1 tsp. of camphorated opium tincture (paregoric) three times a day.

Most treatment failures are due to reinfection from carriers in the home or raw foodstuffs improperly cleansed.

An equally effective regimen is one using bismuth glycolylarsanilate and vioform,® the other instructions remaining as above. The patient is given one tablet of bismuth glycolylarsanilate (0.5 gm.) after each meal for 8 days, followed by two tablets of vioform® (each 0.25 gm.) after breakfast and supper for 10 days; and then the 8 day course of bismuth glycolylarsanilate is repeated.

Bacillary dysentery.—Most of the sulfonamides and antibiotics [7] are highly effective against bacillary dysentery. This is fortunate as the bacilli causing this disease are sometimes resistant to one or more of these therapeutic agents. There is no good proof that the antibiotics are superior to the sulfonamides in bacillary dysentery. Two types of sulfonamides have been used with excellent results, the absorbable and the relatively nonabsorbable forms of the drugs. Sulfadiazine, used so extensively in the military service, is highly reliable and safe and has the obvious advantage of reaching all organs, thus destroying the dysentery bacillus wherever it may lodge in the event bacteremia occurs. Sulfisoxazole (gantrisin®) and the various triple sulfonamides have the same advantage, since they are highly absorbable, and the additional advantage of less toxicity, especially to the kidneys. In adults the dose of sulfadiazine should be 2 gm. to 4 gm. to begin with, depending on the severity of the case, and then 1 gm. every four hours, with 1 dr. (4 gm.) of sodium bicarbonate with each dose. After the fever abates, the dose should be reduced to 1 gm. four times daily for one week to prevent relapse. The bacteriological cure of the patient should be proved by negative stool cultures; if these remain positive one of the antibiotics should be exhibited as described below. Sulfadiazine can be given intravenously in these same doses well diluted in 5% glucose in distilled water until the patient can take the drug by mouth. The relatively nonabsorbable sulfonamides, such as phthalylsulfathiozole (sulfathalidine®), succinylsulfathiazole (sulfasuxidine®), and sulfaguanidine, build up high concentrations in the gastrointestinal tract, which is an advantage, but are not absorbed sufficiently to deal safely with bacteremic complications; hence I feel that they are inferior to sulfadiazine. The dosage for each is 4 gm. four to six times daily until one week after the fever departs.

Streptomycin is highly effective against the dysentery bacillus when given either orally, 0.5 gm. four times a day, or intramuscularly, 1 gm. twice daily, later reducing the dosage to 0.5 gm. twice daily. In fulminating cases it is wise to use streptomycin and sulfadiazine together in the above doses from the beginning, since the bacillus

6. Most, H.; Miller, J. W., and Grossman, E. J.: Treatment of Amebiasis with Bacitracin and Other Antibiotics, Am. J. Trop. Med. **30**: 491, 1950.

7. Wirts, C. W., Jr.: Symposium on Infectious Diseases: Acute Enteric Infections, M. Clin. North America **34**: 1667, 1950. Long, P. H.: Symposium on Medical Therapeutics: The Clinical Use of Antibiotics, ibid. **34**: 307, 1950.

may be resistant to one of the drugs and delay in discovering such resistance might be fatal. Polymyxin B (aerosporin®) destroys the dysentery bacillus with great regularity, but such a toxic drug should not be used when equally effective and much safer agents are available. Aureomycin, terramycin, and chloramphenicol are all excellent, but the sulfonamides surpass both these drugs and penicillin. Dehydration, acidosis, and electrolyte imbalance are routine in severe cases of bacillary dysentery and should be combatted vigorously. It is often astonishing how much fluid must be given parenterally to rehydrate such patients. These therapeutic considerations are just as important as choosing a drug to attack the pathogen directly.

PERITONITIS

Brilliant results have been achieved by many investigators in the treatment of peritonitis by the sulfonamides and the antibiotics.[8] This dreaded complication of so many diseases now usually responds to intelligent and vigorous use of these drugs when combined with good surgery and general supportive care. If possible, cultures of the infecting organisms should be tested for sensitivity to the various drugs to permit the choice of the most effective ones. But even in the absence of this laboratory aid, there is sufficient accumulated experience to enable one to institute a therapeutic regimen with confidence.

Aureomycin, by virtue of its potent and wide therapeutic spectrum, is the drug of choice. If it can be given orally the dosage should be no less than 500 mg. every four hours until the temperature reaches normal and then 250 mg. every four hours for one week, to prevent relapse. If the oral route is not feasible it can be given intravenously. It should be well diluted in 5% glucose in distilled water or an isotonic sodium chloride solution to prevent venous irritation or thrombosis. In this manner 500 mg. of the drug can be given in 500 cc. or 1,000 cc. of fluid every six hours until the temperature reaches normal and then twice a day until the patient can take it orally. Terramycin is also highly effective in the same doses and by the same routes as aureomycin. While streptomycin does not seem to be quite as effective as aureomycin, it is, nevertheless, excellent in this field when used in dosages of 1 gm. twice a day until the temperature reaches normal and then 0.5 gm. twice daily for one week. Chloramphenicol has a different therapeutic spectrum from aureomycin and has been used alone or in combination with aureomycin in the treatment of peritonitis. The route is oral, and 4 gm. should be given as a leading dose with 1 gm. every six hours thereafter until the fever is gone, the dosage then being decreased to 0.5 gm. every six hours for one week.

Penicillin alone or with other antibiotics or sulfonamides has achieved many spectacular successes. There seems to be little need to inject it at short intervals; the depot type drug can be given intramuscularly every 12 hours, 600,000 to 800,000 units per injection. It, too, should be continued for at least a week after the temperature reaches normal. Sulfadiazine, sulfisoxazole, and various triple sulfonamides are quite effective in many cases of peritonitis but should not be relied on alone. The loading dose is 4 gm. followed by 1.5 gm. every four hours. Sodium sulfadiazine can be given intravenously easily in approximately these doses well diluted in glucose solution if that route is necessary. The combination of aureomycin, streptomycin, and penicillin or a sulfonamide in the doses described above is a popular one. Good supportive care and intelligent surgery are as necessary for recovery as are these powerful drugs.

PREOPERATIVE PREPARATION OF THE BOWEL

A wide variety of chemotherapeutic and antibiotic agents has been used individually or in various combinations in an attempt to sterilize the intestinal tract prior to surgery in order that postoperative infections might be reduced. These drugs have proved of great value in this field, and their use in this manner has been well established; however, there is no unanimity as to how best to employ them and reports have been conflicting. To be effective these drugs must come in contact with pathogens and remain in contact an appreciable time; hence, the presence of intestinal obstruction interferes distinctly with results. Constipation mechanically prevents the agents from reaching the pathogens and marked diarrhea hurries the drugs through the intestinal tract too rapidly to permit maximum effectiveness. Finally, loculated pus, as in fistulas and abscesses, is most difficult if not impossible to sterilize in this manner. These fundamental facts should be borne in mind in evaluating any drugs used in preoperative preparation of the bowel. When one considers the multiplicity of pathogens and possible pathogens in the normal intestinal tract, and even more so in the abnormal bowel, it is easy to understand the difficulty in arriving at a categorical answer as to which of the drugs under consideration should be used.

The sulfonamides were first in this field, and far more experience has accumulated with them than with the antibiotics. While they are of distinct value and much good has been accomplished by their use in this manner, they are inferior to such antibiotics as aureomycin, terramycin, and streptomycin. Phthalylsulfathiazole or succinylsulfathiazole orally seem to be the most popular sulfonamides for this particular use, each having the same dosage of 4 gm. six times a day for the first day, then 2 gm. six times daily for preferably a week. Aureomycin in a dosage of 750 mg. orally four times daily for five days seems to be the best of the group in reducing bowel population. Dearing and Heilman,[9] using approximately this schedule, reported that culturable bacteria, except Pseudomonas and Proteus, were removed from the intestinal tract in 75 of 91 patients. In all cases Clostridium organisms were eliminated. They found little if any advantage in adding 500 mg. of dihydrostreptomycin four times daily to the aureomycin schedule. Streptomycin is the second drug of choice, the dosage being 0.5 gm. four times a day orally for about four days. Terramycin in the same dosages and by the same route as aureomycin will probably prove equal to the latter drug. Chloramphenicol is not valueless, but its effectiveness is not as pronounced as that of aureomycin, terramycin, or streptomycin. Polymyxin B in oral divided doses of 400 mg. per day offers considerable promise.

8. Schaff, B.; Spendlove, J. G., and Todd, J. W.: Treatment of Peritonitis with Parenteral Streptomycin and Penicillin, Am. J. Surg. **77**: 63, 1949. Yeager, G. H., and others: Aureomycin and Chloromycetin in the Treatment of Experimental and Clinical Peritonitis, Bull. School Med. Univ. Maryland **35**: 51, 1950.

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SUMMARY

1. In the treatment of intestinal infections and peritonitis and in the preoperative preparation of the bowel the chemotherapeutic and antibiotic agents have achieved striking success; however, good medical and surgical care are as important as ever and cannot be replaced by these powerful drugs.

2. Typhoid is almost routinely cured by chloramphenicol in heavy doses continued for two weeks.

3. Streptomycin is the drug of choice in the treatment of tuberculous enteritis. The effective dosage is 0.5 gm. twice a day intramuscularly for 120 days if the patient can tolerate it for that length of time.

4. Considerable controversy still exists in the therapy of amebiasis with antibiotics. The older methods of treating this disease have not been replaced yet by aureomycin, terramycin, and bacitracin.

5. Most of the antibiotics are effective against bacillary dysentery, but none are more effective in this disease than the sulfonamides.

6. Various sulfonamides and antibiotics have been used successfully, either individually or together, in the treatment of peritonitis. The combination of aureomycin, streptomycin, and penicillin or a sulfonamide is a popular one.

7. Aureomycin, 750 mg. four times daily by mouth for five days, is the preferable method of preparing the bowel for surgery. The sulfonamides and most of the antibiotics are also excellent in this field.

8 N. Third St.

ANTIBIOTIC AND CHEMOTHERAPEUTIC AGENTS IN INFECTIONS OF THE GENITOURINARY TRACT

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The past two decades have witnessed advances in the development of antibacterial agents that have approached the goal that Ehrlich was seeking half a century ago. Today venereal disease has yielded so completely to antibacterial agents that successful treatment is dependent more on economic considerations than on professional skills. The response of urinary tract infections to the newer antibacterials has also been spectacular, but in this area the responsiveness to treatment has been less universal than that observed in specific genital infections. Effective, modern remedies bring about a quick response in urinary tract infections, with the result that the period of disability and suffering for many patients has been reduced. But today's physician, despite the many chemotherapeutic as well as antibiotic agents, continues to encounter a disturbing proportion of urinary infections that now, as in the past, fail to improve under therapy or recur following remission. These failures comprise a real therapeutic challenge to the physician.

REASONS FOR THERAPEUTIC FAILURE

Stasis of urine is the commonest predisposing cause for infection and, likewise, the commonest obstacle to cure. In women a frequent cause for stasis is pregnancy, with its related ureteral dilatation. Multiple pregnancies predispose to permanent ureteral stasis, particularly when infection has occurred and has not disappeared postpartum. In men a frequent cause of stasis is obstruction at the bladder neck owing to prostatism. There are many less common causes for stasis in adults that can be determined by appropriate examination. In young adults congenital hydronephrosis is a common cause of urinary stasis, and in early childhood obstructions of the urethra in persons of either sex often give rise to stasis. Any infant or young child who does not empty the bladder with an uninterrupted full urinary stream should be examined for obstructive uropathy. The majority of infants in whom urinary infections develop will be found, if appropriately examined, to have lesions of the urinary tract, which predispose to infection.

Calculous disease is a frequent predisposing factor, and urinary infections that develop in conjunction with calculi rarely disappear until the calculus is removed. Malignant disease of the bladder is often accompanied by infection; in fact, long-standing infection itself appears to be the occasional cause of malignant metaplasia of the bladder epithelium. Another condition that occasionally gives rise to chronic urinary infection is fistula between the bowel and bladder. It is most often caused by cancer of the colon or diverticulitis, and, when discovered, the clinician may find it quite difficult to determine which of these conditions is the cause. Enterovesical fistula is distinguished clinically by its chronicity and the severity of the bladder irritation. The history of pneumaturia will usually lead to a suspicion of fistula, but often the patient does not inform the physician that he has noticed the passing of bubbles with urination. Inquiry regarding this unusual symptom should always be made of patients who have chronic severe cystitis.

Lesions in the urethra are a common source of refractory infections of the urinary tract. Instrumentation often induces inflammatory conditions in the urethra that are difficult to eradicate. Many surgeons utilize an indwelling catheter following perineal repair or removal of the rectum for cancer. This practice is not to be condemned, but it often introduces infection, which recurs and persists until focal areas of inflammation in the urethra are found by endoscopic study and eradicated by

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appropriate measures. In women the urethra is a potent source of vulnerability to infection. This occurs at three periods of life: infancy, when fecal contamination of the urethra can occur as a result of improper diaper hygiene; in early adult life, when the activities of sexual life and child-bearing bring about traumatic incidents; and during senescence, when the mucous membranes of the urethra tend to have a lessened resistance to the flora of the genital tract. Many women who suffer from recurrent or persisting urinary infections have gross inflammatory lesions in the urethra that act as foci for their infections. Diverticula of the urethra are occasional sources of difficulty, but the commonest cause of trouble is nonmalignant polyposis; both conditions are easy to diagnose and simple to treat.

Tuberculosis in the urinary tract occasionally develops as an acute process, but the disease always runs a chronic course and fails to respond to the ordinary therapeutic agents. Bacterial pyuria is usually caused by tuberculosis, but many physicians forget that secondary pyogenic infection occurs in nearly a third of the cases. Tuberculosis should always be suspected in refractory cases of urinary infection.

Inadequate dosage of the antibacterial agent is often responsible for therapeutic failure. While this is true in all parts of the body, it is especially true in the urinary tract. Infections in this area are primarily situated in the tissues of the involved organ, but the urine usually contains living organisms that also must be destroyed. To get rid of organisms in one site and not in the other will result in therapeutic failure. Most recommended dosages have been established by laboratory investigation in which in vitro urinary concentrations of the antibacterial agent have been tested with various susceptible organisms. Dosages that are based on this criterion may be adequate for ridding the urine of bacteria and yet at the same time be inadequate for destroying organisms in the tissues of the kidney or the prostate gland; substances that are excreted by the kidney are more concentrated in the urine than in the blood serum or tissue fluids. It is at once evident then that the successful treatment of kidney infections will depend not only on the selection of a suitable antibacterial agent but also on maintenance of a tissue fluid level that is adequate for destruction of the organisms. This is particularly important in chronic infections where barriers of round cell infiltration or cicatrix formation mitigate against effective tissue saturation with the antibacterial. For this reason it would appear rational, in treating refractory infections, to employ higher than ordinary dosages for longer periods of time than usually employed.

Resistance of the organisms to the antibacterial agent is another cause of failure in treatment. Experience has shown that each drug has limitations of usefulness based on the bacterial spectrum that it covers. Thus penicillin is effective against Neisseria gonorrhoeae, hemolytic streptococci, and some strains of Staphylococcus aureus and Staph. albus. It is ineffective against gram-negative bacilli. Aureomycin, terramycin, and chloramphenicol are effective not only against most of the gram-negative bacilli but also against many of the coccal forms. In general, the sulfonamides are effective in the same spectrums as the latter group of antibiotics. But specific organisms in all parts of the spectrum have avoided destruction by any of these agents. These resistant organisms have given rise to some of the greatest problems of therapy, since the clinician encounters occasional cases in which all of the infecting organisms fail to succumb to any known agent.

It was not until the development of sulfonamides and, later, streptomycin that bacterial strains were observed that were initially sensitive to the effect of these drugs but later became tolerant of them even in high concentrations. It was noted that these strains appeared most commonly under situations that fostered poor contact of drug with organism, either as a result of inadequate dosage or by reason of the nature of the tissues present. Recently it has been shown that not only does resistance develop to a specific antibiotic but that cross resistance occurs against those drugs having similar bacterial spectrums.[1] The clinical implications of the phenomenon are obvious. For example, in treating a case of urinary infection with septicemia secondary to an unsuspected obstructing ureteral calculus, a physician may obtain culture and sensitivity studies and find the organism to be sensitive to three potent antibiotics; therefore he would employ one of them in the usual dosage. If a week passes and the patient shows no improvement, the physician may discover and remove the obstructing calculus; but now the antibiotic would be ineffective because of previous conditions adverse to its activity. Furthermore, the other two antibiotics would be now found to be valueless, through cross resistance that had developed in the organism. Thus, by a single stroke of misdirected effort, the only means of eradicating an existing septicemic pyelonephritis may be lost.

Equally important, but fortunately more rare, is the associated phenomenon of bacterial drug dependency. Miller and Bohnhoff[2] first demonstrated the fact that bacteria may become dependent on streptomycin for growth, both in vitro and in vivo. Other investigators[3] found evidence that not only were some organisms dependent on the antibiotic for growth but others actually were enhanced by the presence of streptomycin. This has been demonstrated in both tuberculous and nontuberculous infections. The phenomenon of enhancement has ominous implications as demonstrated by a patient of the urology service at the University of Michigan Hospital. He had a fatal case of septicemia, which followed streptomycin treatment of a mild urinary tract infection. This patient had a low grade fever associated with an infection in the urine. Culture and sensitivity studies revealed his infecting organism to be sensitive to streptomycin, which was used for treatment. Within 72 hours he became septic, and blood cultures yielded the same organism, now streptomycin-dependent and enhanced. He died before other therapy could be successfully employed. The antibiotic in this instance acted like gasoline

1. Gocke, T. M., and Finland, M.: Cross-Resistance to Antibiotics: Effect of Repeated Exposure of Bacteria to Aureomycin, Terramycin, Chloramphenicol or Neomycin on the Resistance to all of These Antibiotics and to Streptomycin and Penicillin, J. Lab. & Clin. Med. **38**: 719 (Nov.) 1951.

2. Miller, C. P., and Bohnhoff, M.: Two Streptomycin-Resistant Variants of Meningococcus, J. Bact. **54**: 467 (Oct.) 1947.

3. Rake, G.: Streptomycin as Essential Nutrilite, Proc. Soc. Exper. Biol. & Med. **67**: 249 (Feb.) 1948.

applied to a flame. This situation is not mentioned to condemn the antibiotic in question but rather to suggest that routine use of antibacterial agents be confined to those that are known not to be potentially disastrous.

THERAPY

Perhaps most important is the initial identification of the bacteria being treated. In acute infections and others that are being treated for the first time, a stained sediment of urine is sufficient to begin treatment. When streptococci are demonstrated the use of penicillin is indicated. Prior to 1944 such a statement would include almost all strains of the staphylococci as well, for at that time few resistant organisms were encountered. Recently, however, Nichols and Needham [4] have reported that 68% of the staphylococci encountered are insensitive to penicillin. This may not mean that all of these organisms have become resistant; on the contrary, it would appear, as suggested by Herrell,[5] that the widespread use of penicillin has markedly reduced penicillin-sensitive strains in the bacterial population, and this in turn has allowed penicillin-resistant bacteria to take over. The procaine penicillin G preparation in sesame oil administered in doses of 300,000 units daily for five days is usually effective. If gram-negative bacilli or staphylococci are identified in the urinary sediment, one is best advised first to use a sulfonamide, preferably sulfadiazine, the triple sulfonamides, or sulfisoxazole (gantrisin®). The latter preparation has the advantage of the greatest solubility, and, except for a few reported cases of agranulocytosis, it has little toxicity. Sulfisoxazole is best given in dosages of 1-2 gm. every six hours for a minimum of one week. This plan will reserve the use of the more expensive antibiotics for those instances in which penicillin or the sulfonamides are ineffective, as well as postpone their employment until sensitivity studies have demonstrated a specific indication for their use.

In cases that have failed to clear up on an initial course of treatment and in chronic infections, a complete investigation of the urinary tract should be carried out to determine what factors are present that might contribute to the perpetuation of the infection. The investigation should include cystoscopy, pyelography, and bacteriological study of the urine to ascertain the identity of the organism or organisms and to determine qualitatively what antibacterial sensitivity can be demonstrated. The quantitative value of such tests is dubious for the variables that bear on their interpretation are too numerous to ascribe accuracy to them.[6] The tube dilution method is probably the most accurate, but it is expensive and time consuming. Recent investigation has resulted in the introduction of the disc method for determining gross sensitivity. It has proved as reliable as some of the other methods with the notable exception that the rapid rate of deterioration of aureomycin during incubation obviates its use by this method.[7] It is obvious that once an antibiotic is selected on the basis of culture and sensitivity tests, its use should be withheld until contributing factors, such as urinary stasis, calculi, and neoplasms, have been removed. While it is possible to clear the urine in some instances when these factors are present, the recurrence of infection in such cases is almost the rule. Once specific therapy is decided on, every effort should be made to treat the infection vigorously, both from the standpoint of dose and duration.

Aureomycin, chloramphenicol, and terramycin should be given for a minimum of seven days employing 500 mg. at six hour intervals around the clock. It will be found that any of the three will resolve infections due to Escherichia coli and Streptococcus faecalis. Terramycin has proven efficacious against some strains of Pseudomonas aeruginosa and Aerobacter aerogenes. Chloramphenicol has likewise exerted a bacteriostatic effect on A. aerogenes, Bacillus proteus, and Klebsiella pneumoniae. Aureomycin has been of value as well in penicillin-resistant staphylococcic infections, but it has been notably ineffective against Ps. aeruginosa. Terramycin has been equally poor in B. proteus-induced disease. Both aureomycin and terramycin have the advantage of availability for intravenous administration. A similar preparation for chloramphenicol is under investigation.

There are certain strains of bacteria that prove resistant even to adequate therapy with the above agents. This is especially true of Ps. aeruginosa. Recently two new antibiotics polymyxin and neomycin have been introduced, both very effective against this organism. Both have been restricted in their usefulness by reason of toxicity. Analysis of reports of their adverse effects, however, show that, as long as the drug dosage is kept within reasonable limits, their toxicity does not constitute a contraindication to their use, when necessary. Polymyxin may be given in amounts of 2.5 mg. per kilogram of body weight a day intramuscularly for no more than seven days; neomycin orally 250 mg. every six hours for an equal period of time. Nephrotoxicity and ototoxicity should be anticipated. Neither drug is indicated in the presence of poor renal function.

It may eventually prove to be true that no single factor will be found more important to the solution of resistant urinary tract infections than that first offered by Romansky and co-workers [8] when they demonstrated the phenomenon of antibiotic and chemotherapeutic synergism. These investigators and others have shown such action with combinations of streptomycin, penicillin, aureomycin, and chloramphenicol, when used in pairs. Spicer [9] and Welch [10] have demonstrated similar effects using bacitracin and polymyxin, and Rhoads, Billings, and O'Conor [11] have described such benefits with sulfisoxazole in combination with various antibiotics. Equally

4. Nichols, D. R., and Needham, G. M.: Aureomycin in Treatment of Penicillin-Resistant Staphylococcic Bacteremia, Proc. Staff Meet., Mayo Clin. **24**: 309 (June 8) 1949.

5. Herrell, W. E.; Nichols, D. R., and Heilman, F. R.: Procaine Penicillin G (Duracillin): New Salt of Penicillin Which Prolongs Action of Penicillin, Proc. Staff Meet., Mayo Clin. **22**: 567 (Dec. 10) 1947.

6. Jackson, G. G., and Finland, M.: Comparison of Methods for Determining Sensitivity of Bacteria to Antibiotics in Vitro, A. M. A. Arch. Int. Med. **88**: 446 (Oct.) 1951.

7. Braudie, A. I., and Dockrill, M.: Personal communication to the authors.

8. Romansky, M. J.; Fusillo, M., and Levy, M.: Synergistic Action of Combinations of Antibiotics and Their Practical Application, in Transactions of the Ninth Streptomycin Conference, Washington, D. C., Veterans Administration, 1950, pp. 173-174.

9. Spicer, S.: Bacteriologic Studies of Newer Antibiotics: Effect of Combined Drugs on Microorganisms, J. Lab. & Clin. Med. **36**: 183 (Aug.) 1950.

10. Welch, H.; Randall, W. A., and Price, C. W.: Effect of Streptomycin-Bacitracin-Polymyxin Combination, Polymyxin B, and Streptomycin with Glucuronolactone on Intestinal Flora of Man, J. Am. Pharm. A. (Scient. Ed.) **39**: 486 (Sept.) 1950.

11. Rhoads, P. S.; Billings, C. E., and O'Conor, V. J.: Antibacterial Management of Urinary Tract Infections, J. A. M. A. **148**: 165 (Jan. 19) 1952.

important synergism has been ascribed to combinations of *p*-aminosalicylic acid and streptomycin in the treatment of tuberculosis. The exact mechanism involved is not understood, but it seems reasonable to assume that the two agents may attack the bacterial cell from different metabolic standpoints, both contributing to a more complete inhibition of growth.

In this regard it is of interest to note that often the mixed character of an infection is hidden by the growth predominance of one of the organisms present. On treatment this microbe may disappear, but subsequent cultures reveal either one or more different organisms still present. The implication is not that reinfection has taken place, nor that there has been an error in laboratory method, but that once the predominant bacteria were suppressed the environment became favorable for the growth of others not necessarily affected by the antibiotic used. Combined therapy might obviate such a circumstance. It has been recommended by some [7] that combined therapy be administered in a staggered fashion, possibly starting with aureomycin 2 gm. a day for five days, overlapping with sulfisoxazole 2 gm. a day for an additional five to seven days. Under such a program, the majority of the organisms present might well be dealt with using the first agent, and what few resistant forms that remain uninhibited or partially inhibited are then subject to another agent for the maximum bacteriostatic or bacteriocidal effect. Whether administered staggered or simultaneously, it is now evident that combined therapy yields more cures than the use of various drugs alone, so this technique should take precedence in the management of chronic or refractory infections. But success will depend upon the careful selection of the proper medication, which is indicated by culture methods, and the prior elimination of any factor that mitigates against success, such as calculus or stasis, and finally the employment of generous rather than minimal dosage of the medication.

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ANTIBIOTIC AND CHEMOTHERAPEUTIC AGENTS IN INFECTIONS OF THE SKELETAL SYSTEM

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The management of acute infections of the skeletal system has been greatly modified during the past decade by the use of antibacterial agents. These agents, which include those of nonbiologic origin, such as the sulfonamides, and those of biologic origin, such as the antibiotics, not only have radically changed our ideas concerning the most satisfactory methods of treatment in many instances but have also emphasized the extraordinary recuperative and regenerative powers of bone unimpeded by continuing infection. The intention of this discussion is to summarize the current knowledge of the use of various antibiotic and chemotherapeutic agents in the management of certain infections of the skeletal system, including acute osteomyelitis, acute purulent arthritis, chronic osteomyelitis, tuberculosis, syphilis, actinomycosis, and blastomycosis. Because of the increasing percentage in our environment of bacteria that are progressively developing resistance to the antibiotics, it is important to reappraise at frequent intervals the results obtained with the closed method of treatment of disease with antibiotics.

GENERAL CONSIDERATIONS

Cumulative clinical experience has emphasized that the effectiveness of the antibacterial agents against infections largely depends on the clinician's observance of certain established principles. These include accurate and complete diagnosis of the lesion, early treatment with proper doses and administration of a suitable antibacterial agent, knowledge of the reactions that may occur during therapy, correct timing of surgical treatment, and adequate supportive therapy. Unfortunately, more patients with fever are being treated haphazardly with antibiotics, with little attempt at accurate diagnosis. This is unwise. When possible, infectious material from the lesion should be examined by smear and culture to obtain specific diagnostic information.

The choice of the antibiotic agent for a given patient should be based, at first, on the presumable effectiveness of the various antibiotics against the general type of bacterium causing the infection and, later, on the susceptibility of the infecting bacterium to the various antibiotic agents as determined by in vitro sensitivity tests. In this way, a mistaken choice can be corrected within 24 to 48 hours on the basis of the sensitivity tests. This procedure is preferable to the blind selection and haphazard trial of antibacterial agents. In general, only one or possibly two antibiotic agents should be used in the treatment of infections of the skeletal system. Shotgun mixtures of three, four, or more agents should be avoided. The antibiotic agents, especially penicillin, are generally preferable to the sulfonamides for treatment of these infections. Bacterial resistance is seen much more commonly in chronic than in acute infections of the bone; consequently, bacteriological studies and sensitivity tests are especially important in cases of this type of lesion.

The earlier antibacterial therapy is started after the onset of the infection, the better. The control of the invasiveness of the process is more rapid, and the spontaneous resolution and healing of the bone is more complete. Late treatment usually results in more limited and delayed effects, and complications, such as abscess formation, necrosis of bone, sequestration, or systemic or

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metastatic infection, occur more frequently. Failure to recognize metastatic complications usually results in incomplete antibacterial response and prolonged morbidity or death. If the temperature and other general signs of infection do not begin to recede within 72 hours after the beginning of therapy, resistance of the infecting bacterium to the agent, coexistence of a neighboring abscess, or presence of one or more metastatic infections should be considered. Evidence indicates that the dose of the agent used should be sufficiently large to produce antibacterial concentrations in the blood and tissues and that the duration of therapy should be long enough to permit the natural defensive mechanisms of the body to dispose of the inhibited but still viable bacteria. Failure to do this may result in the delayed reappearance or exacerbation of the infection. Since toxic reactions may develop during therapy with any of the antibacterial agents, it is advisable for the clinician to be informed about their nature and alert to their occurrence and significance.

ACUTE HEMATOGENOUS OSTEOMYELITIS

The remarkable control by the antibiotic agents of acute hematogenous osteomyelitis of the major long bones of the body has been amply proved by the extensive experience of many clinicians, including Altemeier and his associates; Aird; McAdam; Higley and Rude; Hamilton and Boyd; Lehmann; Agerholm and Trueta; Hudson, Butler, Bodian, and others; Caldwell; Compere, Schnute, and Cattell; and Millbourn.

Our studies of this infection, originally started in 1943, have been continued to include 110 patients with involvement of one or more of the major bones. There was associated septic involvement of the adjacent joints in 22 patients, the knee joint being involved in 9, the hip joint in 9, the ankle in 3, and the shoulder in 1. More than one bone was infected in 17 of the 110 patients. The principal bone involved in each of the patients is shown in table 1.

TABLE 1.—*Principal Bone Involved in 100 Patients with Acute Hematogenous Osteomyelitis**

Bone Involved	No. of Patients
Femur	45
Tibia	38
Humerus	16
Fibula	4
Ulna	2
Radius	1
Ilium	3
Ischium	1
Total	110

* Only the major bones involved are listed; minor bones, such as ribs and carpal bones, are not included.

Eighty-six of these patients were treated in the Cincinnati General Hospital and the Children's Hospital, and the remainder were treated at the Christ, Good Samaritan, and Bethesda Hospitals in Cincinnati. Seventy-two (65%) of the patients were 10 years of age or younger, and 98 (89%) were 20 years of age or younger. Eighty-two (74%) were males and 28 were females. The etiological agent was determined in 75% of the patients by culture of the blood or material from the local infection (table 2). In the great majority of instances, it was the hemolytic Staphylococcus aureus (Micrococcus pyogenes aureus). Septicemia was demonstrated by blood culture in 38 (34.5%) patients. There was an incidence of 3.6% of hematogenous osteomyelitic infections produced by gram-negative bacilli in this series, which is higher than that of 0.25 per cent in 1,597 cases collected individually by Butler, Frazer, Crossen, and Key.

TABLE 2.—*Etiological Agents in 110 Patients with Acute Hematogenous Osteomyelitis*

Type of Bacteria	Patients	
	No.	% *
Staph. aureus	67	80.7
Nonhemolytic Streptococcus	6	8.4
Hemolytic Streptococcus	3	3.6
Pneumococcus, Type 3	2	2.4
Alpha hemolytic Streptococcus	1	1.2
Gram-positive cocci (unidentified)	1	1.2
H. influenzae, Type b	2	2.4
A. aerogenes	1	1.2
Undetermined	27	....

* Based on 83 cases in which the infecting bacterium was determined.

The method of management of acute hematogenous osteomyelitis used in this series was essentially the same as that described previously by us.

Establishment of Diagnosis at Earliest Possible Time.—At the point in the disease when antibiotic therapy could be expected to give excellent results in the majority of instances, recognition of the disease was possible only on the basis of clinical signs and symptoms. Little or no help was obtained from roentgenograms during the first 5 to 11 days of the disease. The precise diagnosis of acute osteomyelitis was facilitated in many instances by aspiration of the area involved, using local anesthesia, as recommended by Aird. This method also permitted determination of the types of infecting bacteria and their antibiotic sensitivity.

Early and Adequate Antibiotic Therapy.—As soon as the diagnosis was made, therapy with one of the antibiotics was started immediately. Penicillin was the agent of choice in cases caused by gram-positive pyogenic cocci, and a dose of 50,000 units every three hours for a period of at least three weeks seemed to be adequate in most of the early cases. If the therapeutic response was incomplete, penicillin therapy was continued beyond this period. In nine of our patients, the infecting staphylococci were found to be resistant to penicillin, and other broad spectrum agents, such as terramycin, chloramphenicol, or aureomycin, were substituted successfully. If the etiological agent was a gram-negative organism, great care was taken in choosing one of the antibiotics of the latter group, the choice depending on the sensitivity tests.

Surgical Treatment.—Emergency surgical intervention with drainage of the bone was not done in the great majority of our cases because of the remarkable control of the infection by antibiotic therapy. If the infection became fulminating, emergency surgical drainage was instituted at the earliest possible time. Large soft tissue abscesses, present at the start of or developing during treatment, were incised and drained early to release the necrotizing toxins and to lessen the degree of toxemia and local necrosis. These operative wounds were not sutured either immediately or within five to ten days, as

done by some surgeons under the protective screen of antibiotic therapy. Smaller abscesses were treated by repeated aspiration and instillation of a solution of penicillin containing 5,000 units of penicillin per cubic centimeter. If sequestration occurred later in the illness, further conservative therapy was advised while the fate of

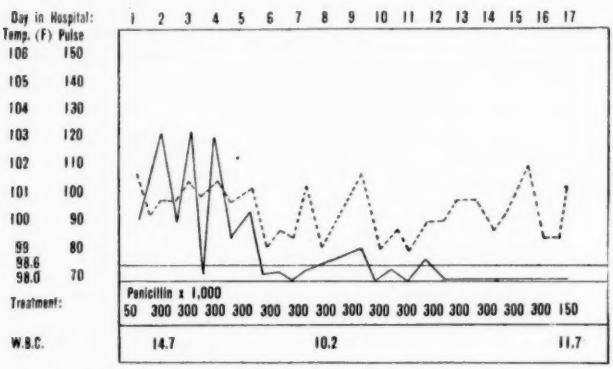

Fig. 1.—Hospital course of a 9-year-old boy with acute hematogenous osteomyelitis of the left tibia, showing excellent febrile response to penicillin therapy (temperature is indicated by unbroken line and pulse by broken line).

the sequestrum was followed temporarily with serial roentgenograms. Complete absorption or revascularization of the sequestrum occurred frequently. In case of its incomplete absorption, detachment from the adjacent involucrum, or involvement in an abscess cavity sequestrectomy was done.

Immobilization of the Extremity.—During the acute phase of the infection, immobilization of the involved area was recommended for two or three weeks, preferably by a plaster splint or bivalved cast that permitted observation of the progression or regression of the signs of local infection. The duration of immobilization was extended when intensive demineralization of the bone or sequestration was present. Failure to support the limb until adequate recalcification occurred resulted in pathological fracture in three patients seen during the early phase of this study.

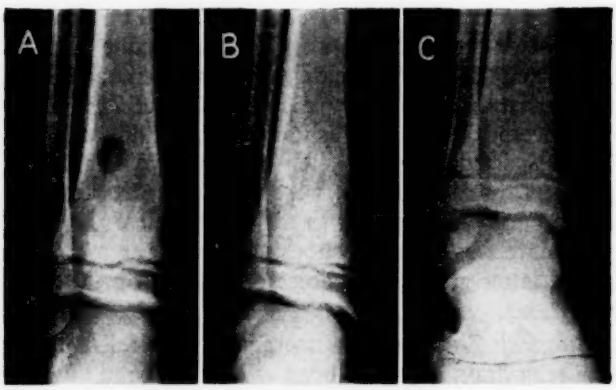

Fig. 2.—*A*, roentgenogram showing rarefaction in shaft of tibia and layering of the periosteum on lateral aspect of tibia in a 13-year-old boy with acute osteomyelitis, taken six weeks after onset of infection and after penicillin therapy; *B*, roentgenogram taken eight months after onset of infection, showing apparently complete healing, with recalcification and reconstitution of the involved area; *C*, roentgenogram taken two years later showing apparently normal bone and no evidence of recurrence.

Adequate Supportive Therapy and Continued Vigilance.—Adequate supportive therapy, including administration of repeated small blood transfusions, fluids, electrolytes, and oxygen, was given as indicated. The progress and extent of the disease were carefully watched so that development of soft tissue abscesses, metastatic visceral complications, purulent arthritis of contiguous joints, or other complications could be detected.

Serial Roentgenographic Examinations.—Serial roentgenographic examinations were carried out at intervals of one week during the early stages of the disease and at intervals of one month during the later stages for at least a year to determine the extent and nature of the damage to the bone and adjacent joint, the development of sequestrums, and the repair of the involved area.

Under this plan of management, the results in this series of 110 patients generally were striking. All but 2 of the 110 patients recovered, giving a mortality of 1.8%. This represents a significant reduction from a mortality of about 25% before the advent of chemotherapy. One death occurred in patient with a severe and neglected case of acute hematogenous osteomyelitis of the tibia, with staphylococcal septicemia and pneumonia, who was admitted to the hospital in a morbid condition 17½ hours before death. The other fatal case occurred in 1946 and was an overwhelming infection produced by Aerobacter aerogenes that was resistant to streptomycin therapy.

TABLE 3.—*Immediate Results of Treatment in 110 Patients with Acute Hematogenous Osteomyelitis*

Duration of Disease Before Penicillin Treatment	No. of Patients	Results			
		Excellent	Good	Questionable	Failure
1 to 3 days (group 1).....	27	20	4	3	0
4 to 6 days (group 2).....	29	21	8	0	0
7 to 9 days (group 3).....	22	5	13	4	0
10 days or more (group 4)	32	4	18	7	3

In general, the results of antibiotic therapy seemed to vary primarily with the duration of the disease at the time treatment was begun, with the dosage used, and with the severity of the individual infection (table 3).

Sterilization of the blood stream and progressive control of the generalized infection prevented metastatic or secondary infectious complications and arrested the local infectious process in bone to such an extent that a significant decrease in morbidity occurred. Figure 1 shows the hospital course of a typical patient. The usual period of hospitalization was 15 to 30 days. If metastatic complications, such as staphylococcal pneumonitis, pericarditis, or septic thrombophlebitis, already existed, antibiotics were powerful aids in their control. The return to function of the extremity was also more rapid than with previous forms of treatment, normal weight-bearing often being permitted within three months. The healing of the bone was very satisfactory in the great majority of instances, with restoration of its architecture to normal or near normal and with considerably less osteosclerosis, sequestration, and impairment of function of the adjacent joints (fig. 2). The opinion held by some of the older surgeons that a person with acute hematogenous osteomyelitis is never cured appears to be completely unfounded. Follow-up studies have indicated that 14 of the patients have had recurrences since the original antibacterial treatment. Six of these were in group 1 (table 3), in which the diagnosis was made and treatment started within three days after the onset of illness. This

was disappointing but was explainable in four as being the result of inadequate doses of penicillin given over too short a period. In three of these, primary treatment lasted 7 to 11 days only. In two, the recurrence was the result of indiscriminate treatment of a fever associated with undiagnosed acute hematogenous osteomyelitis. This type of treatment in the home will almost certainly tend to cause recurrences because of the inadequate control of the original infection. In group 2, there were two recurrences. In one, treatment had been with the repository type of penicillin, which gives low blood levels, and in the other, an inadequate dose of chloramphenicol was used. There were three recurrences in group 3 and three in group 4.

ACUTE PURULENT ARTHRITIS

Modern antibacterial therapy has also had a profound effect on the management of acute purulent arthritis. The use of the proper agent usually produced rapid control of the infection, eliminated the necessity for incision and drainage of the joint in the great majority of cases, minimized secondary contamination of the joint by other bacteria, decreased morbidity, decreased or prevented destruction of the joint cartilage, and permitted early return of good function.

TABLE 4.—*Etiological Agent in Seventy Patients with Acute Purulent Arthritis*

Infecting Organism	No. of Patients
Hemolytic Staph. aureus	29
Gonococcus	25
Hemolytic Streptococcus	2
Pneumococcus	3
Meningococcus	3
H. influenzae	2
B. para-colon	1
A. aerogenes	1
Sterile	4

The plan of management used in 70 cases of acute purulent arthritis seen during the past three and a half years consisted of early diagnosis, determination of the nature of the infecting agent by aspiration of the joint and examination of the purulent material by stained smear and culture, determination of the sensitivity of the bacteria to the available antibacterial agents, early and adequate antibacterial therapy, rest, and supportive therapy. Thirty-eight of the patients were males and 32 were females. In 22, the lesions occurred in association with acute hematogenous osteomyelitis and represented an extension of this infection to the contiguous joint. The knee was involved in nine patients, the hip in nine, the ankle in three, and the shoulder in one. In 26 cases, the purulent arthritis was a metastatic manifestation of gonorrhea. In the remainder, infection occurred as local or metastatic infections and were produced by a variety of bacteria. The etiological agents found are shown in table 4.

Positive blood cultures were obtained at the time of admission in nine patients; in two the causative organism was Meningococcus, in three it was hemolytic Staph. aureus, in two it was H. influenzae, and in three others it was hemolytic Streptococcus, A. aerogenes, and Pneumococcus, respectively. The knee was involved in 40% of the patients, with the hip and ankle the next most frequently involved joints. The incidence of joint involvement is shown in table 5.

The antibiotics were superior to the sulfonamides in the management of all types of septic arthritis, although the sulfonamide compounds were effective in some instances of septic arthritis produced by pneumococci, gonococci, and hemolytic streptococci. They were of no apparent value in the treatment of infections produced by the hemolytic Staph. aureus. Penicillin was the most effective antibiotic in the majority of instances, and in most, the response was dramatic. Terramycin, aureomycin, and chloramphenicol were also used effectively in a smaller proportion of cases, depending on the sensitivity of the bacteria.

TABLE 5.—*Incidence of Joint Involvement in Seventy Patients with Acute Purulent Arthritis*

Joint Involved	No. of Patients
Knee	28
Hip	11
Ankle	11
Elbow	8
Wrist	6
Shoulder	4
Sternoclavicular	1
Temporomandibular	1

If penicillin was used, 100,000 units was injected into the joint cavity after aspiration of the purulent material. Sodium chloride solution was used to dissolve the penicillin, the amount used being about one-half the amount of the pus removed from the joint. In addition, penicillin was administered systemically. The dosage of penicillin generally employed was either 50,000 to 100,000 units of the aqueous potassium penicillin G administered intramuscularly every three hours or 200,000 units of the same preparation given every eight hours. In some instances, 300,000 units of procaine penicillin G fortified with 100,000 units of potassium penicillin G in aqueous suspension was used every 12 hours. Chloramphenicol, aureomycin, or terramycin was used in doses of 500 mg. every four to six hours, as indicated. Antibiotic therapy should be continued until the patient is afebrile and until signs of the local infection have completely subsided. This usually occurred within 7 to 14 days. Results obtained in the 70 cases studied are indicated in table 6.

TABLE 6.—*Results of Antibiotic Therapy in Seventy Patients with Acute Purulent Arthritis*

	Results			
Infecting Organism	Excellent	Good	Questionable or Fair	Failure
Hemolytic Staph. aureus	17	7	4	1
Gonococcus	16	6	2	..
Pneumococcus	3	1	..	..
Hemolytic Streptococcus	1	1	..	..
Meningococcus	2	1	..	..
H. influenzae	1	1	..	..
B. para-colon	1	..	..	..
A. aerogenes	..	..	..	1
Sterile	3	1	..	..

The joint was drained surgically only in cases in which antibacterial therapy failed and those in which there was a mixed infection. Analysis of the results in table 6 shows that excellent results, with complete con-

trol of the infection and early and complete restitution of function of the involved joint, occurred in 44 of the 70 patients. Figure 3 shows the hospital course of a typical patient. Good results, with slower control of the infection and residual swelling of the joint for a period of two to four weeks, occurred in 18 of the patients. In six, the results were questionable or fair, and in two, the treatment failed.

CHRONIC PYOGENIC OSTEOMYELITIS

Antibacterial therapy has had a much more limited effect in the management of chronic osteomyelitis than it has had in that of acute osteomyelitis. The treatment of chronic pyogenic osteomyelitis remains difficult, its course prolonged, and the results uncertain. No new contributions to the treatment of chronic osteomyelitis have been made recently, and the basic limitations of antibiotic therapy persist, as outlined by Lyons. The principles of management consist of adequate preoperative preparation, including antibiotic therapy, and eradication of bacteria-

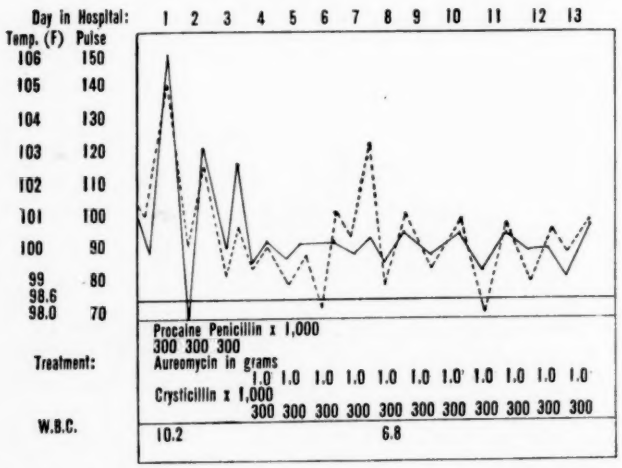

Fig. 3.—Hospital course of a 9-year-old white boy with acute hematogenous osteomyelitis of the upper femur, acute septic arthritis of the hip, and hemolytic Staph. aureus septicemia. The causative organism, hemolytic Staph. aureus, was resistant to penicillin but sensitive to aureomycin; treatment was conservative and included repeated aspirations of the joint and antibacterial therapy (temperature is indicated by unbroken line and pulse by broken line). (Crysticillin® is a procaine penicillin G preparation.)

laden and compromised tissue, provision of adequate blood supply, reinforcement of bone where necessary to provide a functioning limb, adequate covering with a full thickness of skin, and adequate postoperative antibiotic treatment.

Unlike acute osteomyelitis, which occurs in previously normal bone, chronic pyogenic osteomyelitis is a surgical infection existing in bone that has undergone changes resulting from both destruction and incomplete attempts at repair. The changes of destruction consist of the formation of cavities that may or may not contain pus, sequestrums, infected or indolent granulation tissue, or fibrous tissue. Sinus tracts lined with dense fibrous tissue may be present. The reparative processes are characterized by subperiosteal or endosteal formation of new bone, which results in the thickening of the cortex, narrowing of the haversian canals, and obliteration of the medullary cavity. A diseased focus is thus produced that is surrounded by dense sclerotic bone with a diminished blood supply. Surrounding the diseased bone is thickened fibrous periosteum and scarred adjacent soft tissues incidental to long standing stasis of lymph and blood, previous operative procedures, and persistent infection. Viable bacteria become trapped within the fibrotic and sclerotic tissues where they may remain virulent for many years. It is not surprising, therefore, that any attempt to treat such a lesion simply by the administration of antibiotics usually fails. Temporary control of the infection by antibiotics is usually followed by recurrence of the symptoms because of the persistence of the underlying characteristics of the infection. Consequently, the removal of such barriers by adequate surgical intervention is a prerequisite for effective antibacterial therapy.

Resistant strains of bacteria, especially staphylococci and gram-negative bacilli, are commonly found in chronic osteomyelitis. During the past 10 years, treatment of many of these patients has been carried out repeatedly with most of the available antibiotics in the presence of factors that can prevent complete therapeutic response. Hence the organisms tend to develop resistance. In our experience, bacteria that contaminate and infect wounds from sources within the hospital have a much higher incidence of resistance than those from sources outside the hospital or in the home. For these reasons, the causative organism in every case of chronic osteomyelitis should be determined by culture, and its sensitivity to the various antibacterial agents should be determined. One of the newer, broad spectrum antibiotics often is preferable to penicillin. In our experience, chloramphenicol has had the greatest antibacterial effect in vitro against the highest percentage of organisms in these chronic infections, although terramycin and aureomycin also are valuable agents.

It has been shown repeatedly that antibiotic therapy in effective doses should be started 3 or 4 days before operation and continued for 7 to 10 days postoperatively. If examination of the lesion reveals the infection to be an acute exacerbation of a closed process produced by a single type of bacterium, conservative therapy with antibiotics may be indicated if there is no sequestration and if only small areas of patchy demineralization, slight cortical defects, or areas of periosteal reaction are seen on the roentgenograms. Temporary antibiotic therapy may be indicated if sequestration is present but incomplete. Immobilization may aid in arresting the progress of the infection, decreasing the local lymph flow, diminishing the absorption of toxins, and avoiding the danger of pathological fracture.

If examination reveals that foci of infection are present within the bone, that sinus tracts are present, that sequestration is complete, and that the involucrum is sufficiently developed, operative treatment with excision of the scarred, cutaneous, and deep tissues, sequestrectomy, and saucerization is indicated. The operative procedure used may be extensive or limited, depending on the area of bone involved. Sinus tracts should be excised, all dead bone removed, and all pockets containing pus or infected granulation tissue unroofed and cleaned out with as little damage to the periosteum and involucrum as possible. The operative wound may be left open or closed. When excision of the diseased tissues has been completed, pri-

mary closure of the soft tissues over the cavity may be done, aided by a relaxing incision in the adjacent soft tissues. If the latter is done, a split-thickness skin graft can be applied to the defect produced by the relaxing incision. Healing by primary intention or delayed primary healing has occurred in 75 to 90% of the patients treated in this manner and with pre and postoperative antibacterial therapy. Until recently, primary closure of these wounds has been a failure, because there was no agent capable of suppressing bacterial growth in the hematoma which inevitably develops after an attempt is made to close the rigid walled cavity. Various plastic operations to obliterate the cavity, such as the transplantation of cancellous bone, have been performed, but as a rule they have been relatively ineffective. If the wound is left open, a sterile petrolatum gauze dressing is applied and the limb is immobilized by a plaster cast, which may be left undisturbed for four to eight weeks or longer until skin grafting and healing by second intention are possible.

SKELETAL TUBERCULOSIS

Antibacterial therapy has not changed the importance of surgical treatment of skeletal tuberculosis, and the results of treatment with antibiotic measures alone have been generally unsatisfactory; however, surgical treatment of such lesions is much more efficient combined with antibacterial therapy. It must be remembered that tuberculosis of the bones and joints is usually a slow, unrelenting manifestation of a systemic disease. Although considerable caution must be used in reaching any conclusion about the effect of antibiotics in treatment of these lesions, it is becoming evident that streptomycin and dihydrostreptomycin have considerable value in their management. These antibiotics appear to be superior to any of the sulfonamides or other antibiotics. Since their effect is bacteriostatic, they cannot be relied on to exert a direct effect on advanced or established lesions with considerable destruction of cartilage or bone, caseation, and fibrosis. When used intelligently, however, as an adjunct to adequate surgery, there is evidence that they have a significant effect on the mortality rate and a definite influence on the course of the disease. This is especially true in the active, rapidly progressing infection in which previously surgical intervention could not have been expected to arrest the disease. Surgical attack on tuberculous lesions of the skeletal system should be deferred, however, until stabilization of the infection as a whole has occurred, as evidenced by subsidence of the toxic reaction, elevation of the hemoglobin level and red blood cell count, and reduction of the sedimentation rate.

The proper use of streptomycin in skeletal tuberculosis requires its administration for an extended period of three to four months. Complications arising from its use are fairly innocuous. The simultaneous use of para-aminosalicylic acid, when tolerated, aids in the prevention of acquired resistance to streptomycin by the infecting organisms. Paris, Coulthard, and Dewar reported that acquired resistance of the tubercle bacillus did not occur in any patient they treated with streptomycin and para-aminosalicylic acid concurrently, provided the organisms were sensitive at the start of treatment and the dose of para-aminosalicylic acid was not less than 10 gm. daily.

The hope that joints could be salvaged and extensive destruction prevented with early diagnosis and chemotherapy has not been realized, although the effect of streptomycin on pure synovial tuberculosis has been striking in some instances. A similar beneficial effect on involved soft tissues, including draining sinuses, may be expected with treatment by excision of the primary focus combined with chemotherapy. Bosworth and Wright reported healing in 72 of 86 patients treated with this combined therapy.

In closed tuberculous osteomyelitis, the use of streptomycin alone has failed to control the progress of the disease, and most patients eventually must be treated surgically because of the activity of the disease or because of the osseous destruction already present; however, in some instances, antibacterial therapy has produced excellent results (fig. 4). Surgically treated lesions may heal with the aid of streptomycin therapy, but at the same time lesions in other parts of the body may be developing and progressing. Likewise, lesions treated adequately by surgical drainage remain healed, while preexisting sinuses from other osseous foci not treated surgically fail to close. Experience thus far indicates that streptomycin is an aid to the better control of tuberculosis of bones and joints, and its intelligent use has resulted in a great reduction in the death rate.

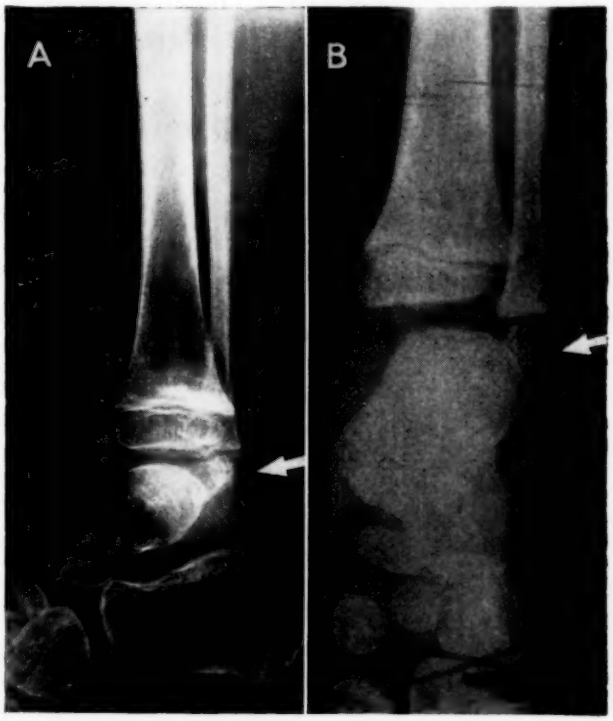

Fig. 4.—*A*, roentgenogram of a 3-year-old white boy with tuberculosis of the distal fibular epiphysis and ankle joint of nine months' duration; *B*, roentgenogram showing healing of the epiphysis two months after treatment with dihydrostreptomycin, 250 mg. every six hours, and para-aminosalicylic acid, 1 gm. three times a day.

SYPHILIS

The number of osseous syphilitic lesions treated by penicillin that are available for study is too small to permit a critical evaluation of its effectiveness in treatment of such lesions. A review of our 3 cases and 22 others that have been reported indicate that penicillin is beneficial

in early syphilitic lesions, affording prompt systematic relief within 2 to 10 days and resulting in evidence of progressively accelerated healing. From the available reports, the sites of predilection of destructive syphilitic lesions appears to be the skull, the bones about the sternoclavicular joint, and the long bones, in that order. The dose of penicillin used successfully by Glaser and Scott was 50,000 units of acqueous sodium penicillin G every two hours day and night for 96 injections, making a total of 4,500,000 units in seven and one-half days. Complete healing occurred in seven months. In our cases, the dose was 50,000 units given every three hours for a total of 6,000,000; 5,700,000, and 11,250,000 units, respectively. The clinical response in all three cases was moderately slow but good, and apparently complete healing occurred (fig. 5). From the meager material available, the

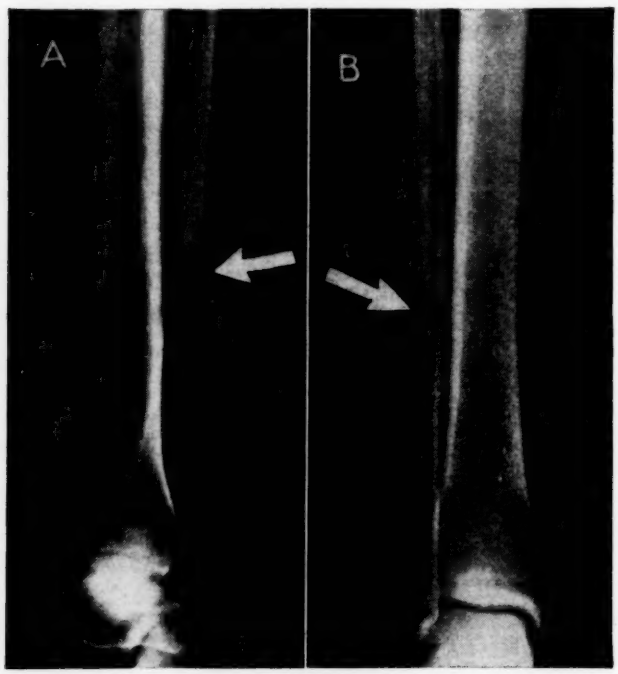

Fig. 5.—*A*, roentgenogram of a 21-year-old Negro woman with syphilitic osteomyelitis of 6 cm. of the lower fibular shaft of two months' duration; *B*, roentgenogram showing healing one month after start of penicillin therapy; 6 million units were administered in doses of 50,000 units every three hours.

results suggest that penicillin is of definite value in the treatment and cure of syphilitic destructive lesions of bone.

ACTINOMYCOSIS AND BLASTOMYCOSIS

Actinomycotic osteomyelitis has responded well to antibacterial therapy in a small number of cases, although the response occurred slowly, requiring 3 to 12 months. This condition has been seen by us in eight patients during the past 10 years. The bones involved were the mandible in two patients, the ribs in two, the humerus in one, the ilium in one, and the phalanges in one. Penicillin was used in average doses over a period of 8 to 12 weeks, and sulfadiazine or sulfamerazine was given concurrently and subsequently for a total of 6 months to 1 year. Spontaneous resolution and slow healing, with healing of the sinus tracts and recession of the induration of the soft tissues, occurred in six patients. In two patients, chemotherapy arrested the progress of the infection, but resection of the involved portions of the mandible and ilium was necessary to achieve healing of the osteomyelitic area. Other reports indicate that the broader spectrum antibiotics are also valuable in the treatment of these infections.

Blastomycotic osteomyelitis has been completely refractive to antibiotic treatment. Five patients with this lesion have been seen by us in the past five years, the mandible being involved in one, the astragalus in one, the ribs in one, the metatarsals in one, and multiple bones in one. Amputation cured two patients. Of the remaining three, one died of the disseminated infection, and two still have evidence of active infection.

SUMMARY

As a result of numerous advances in antibacterial therapy, the outlook of patients with infections of the skeletal system has vastly improved. The treatment of acute pyogenic hematogenous osteomyelitis and acute purulent arthritis has been revolutionized by antibiotic therapy, which produces rapid control of the infection and spontaneous healing in the great majority of instances. In chronic pyogenic osteomyelitis and tuberculous infections of the skeletal system, the effect of antibacterial therapy has been less dramatic. The treatment of these two types of lesions is still based primarily on surgical excision of the diseased focus, but the associated use of antibiotics preoperatively and postoperatively has resulted in decreased morbidity and a high incidence of primary healing after obliteration of rigid wall cavities resulting from the surgical removal of the disease focus. Chronic osteomyelitis produced by syphilis and actinomycosis has responded slowly but progressively to prolonged antibacterial therapy in a few cases, with ultimately striking results. Blastomycotic osteomyelitis remains refractive to chemotherapy.

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Treatment of Chronic Backache.—Some of the most gratifying results of proper physical therapeutic measures are obtained in middle-aged patients with chronic backache who have neglected to maintain proper strength of the muscles necessary to good bodily mechanics and have developed habits of malposture. By judicious stretching of short structures and strengthening of weak muscles by graduated strengthening exercises including the use of progressive resistance exercise techniques, many patients have been able to discard external supports, become pain-free, and able to enjoy physical activities such as golf and tennis. It should be realized that correct posture is fundamentally a habit and can be developed only by a combination of persistent conscious efforts to correct alignment over many months coupled with development of proper strength of any weakened muscle group. Simply doing a few exercises once or twice a day rarely accomplishes the desired results. It should also be understood that development of strong trunk musculature using progressive resistance techniques usually requires a minimum of three months of strenuous daily exercise which, however, requires only 10 to 15 minutes a day. A physician who will take the time and effort necessary to learn more about the mechanical and physiological factors involved in posture will find innumerable opportunities to utilize this knowledge for the benefit of his patients.—Arthur L. Watkins, M.D., Physical Medicine in Office Treatment, *The Medical Clinics of North America*, September, 1952.

PRESENT TRENDS IN DIAGNOSIS AND THERAPY OF DISEASES OF THE CHEST

CHAIRMAN'S ADDRESS

J. Winthrop Peabody, M.D., Washington, D. C.

During 35 years of practice devoted largely to the diagnosis and treatment of diseases of the chest, I have indeed been gratified to witness the individual targets of disease come one by one within the range of our medical guns. Diagnostic methods have nearly attained the accuracy of a complex sighting device, while therapeutic artillery has wreaked havoc among most of the once formidable micro-organic enemy hosts. How poorly manned and ill equipped were the ranks of the medical profession in the days of my early practice. Osler [1] was depicting pneumonia (one of the most fatal of all acute infections), as a disease that could neither be aborted nor eliminated by any means at our command. Bleeding and hydrotherapy were advocated, and x-ray therapy was considered the most effective treatment for delayed resolution. It was estimated that tuberculosis accounted for at least one out of every seven deaths. Rest, fresh air, and good diet represented the sole therapy, with creosote, arsenic, and, in a few cases, artificial pneumothorax being recommended as adjuvants. These early procedures are in sharp contrast with present methods.

MODERN DIAGNOSTIC METHODS

Today the chest specialist has in his armamentarium an extensive array of laboratory procedures that can be advantageously applied in reaching a precise diagnosis. Granting the value of laboratory methods, I find it nonetheless disturbing to observe a tendency on the part of some to place too much reliance on laboratory tests, with light regard for the patient's history and physical examination. I cannot be too peremptory in stating that, without the information acquired through a meticulous history and a careful physical check-up, it is absolutely and totally impossible for a physician to have the proper perspective toward any given case.

While history taking should not be inordinately prolonged, it must certainly entail more than the patient's simple recitation of his present illness. The only clue to a correct diagnosis of illness may hinge upon a person's recent visit to the San Joaquin Valley or other southwestern area of the United States, employment in a plant manufacturing fluorescent lights, the raising of parakeets as a hobby, the recent dressing of wild rabbits, or the inveterate use of oily nose drops. A diagnosis of echinococcic cyst might not come under consideration unless the history revealed that the patient had been raised in Greece or some other country where the disease is endemic. In a patient with an indeterminate, solitary, pulmonary lesion, the occurrence of cutaneous or mucosal telangiectasia in other members of the family, possibly along with repeated gastrointestinal hemorrhage, may suggest the diagnosis of an arteriovenous aneurysm of the lung. It has been recently emphasized that a chronic, nonspecific lung condition may be secondary to long-standing cardiospasm,[2] and only by a careful systemic review of the patient will the physician be prompted to order a barium study and thus determine the cause of the existing disease. Certainly no record of past illness, occupational hazard, or familial disease tendency should ever be omitted from the history. Significant symptoms must be investigated, not ignored, for temporizing may rob the patient of a chance for cure. In a similar manner the more thorough the physical examination, the more likely it is that the physician will obtain additional diagnostic leads.

Of the various laboratory precedures, the routine blood cell count, urinalysis, and sedimentation rate require no comment insofar as their usefulness is concerned. The serologic reactions of the blood are also important, for, although syphilis of the lung is a rare present-day occurrence, aortic aneurysms are not.

Examination of the Sputum.—This method may afford a vast quantity of valuable diagnostic information. In a suspected case of tuberculosis, the presence of acid-fast bacilli in a direct smear or a smear of concentrated specimens is highly suggestive, although not diagnostic, of tuberculous infection, inasmuch as saprophytic, acid-fast bacilli are encountered in the normal tracheobronchial flora. In nocardiosis the bacillary form of this acid-fast fungus can be identical to the tubercle bacillus. Culture of Mycobacterium tuberculosis, either on artificial media or by guinea pig inoculations, affords the best means of diagnosis. The chief drawback to the utilization of the cultural method, namely, the prolonged period required for growth of Myco. tuberculosis, has been significantly reduced both by the addition of tween®-albumin to a Petragnani medium and by a special slide culture method.[3] Recent studies indicate that the diagnosis of lipoid pneumonia can be made by the demonstration of lipophages or abundant free lipoid material in the sputum.[4] It should be pointed out, however, that similar material can occasionally be demonstrated in the sputum of normal persons. Parasites may appear in the sputum during their migration through the lung and may establish an etiological diagnosis in certain cases presenting as bronchial asthma or Loeffler's syndrome.

With regard to the sputum in the diagnosis of the fungus diseases, certain misconceptions deserve clarification. Sulfur granules cannot be considered pathognomonic elements, since they occur in fungus infections other than actinomycosis, notably nocardiosis. While the culture of Myco. tuberculosis from the sputum is prima-facie evidence of tuberculous infection, this is far from true with many of the fungi, such as Candida, Aspergillus, and Geotrichum, which are not unusual tracheobronchial inhabitants and laboratory contaminants. Although Acti-

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Because of space limitations the bibliographical references have been omitted from THE JOURNAL and will appear in the author's reprints.

Read before the Section on Diseases of the Chest at the 101st Annual Session of the American Medical Association, Chicago, June 10, 1952.

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nomyces bovis and Nocardia asteroides are somewhat more suggestive of active pulmonary infection when isolated from the sputum, they are not diagnostic, inasmuch as these fungi are occasional tracheobronchial inhabitants and, like those previously mentioned, may be considered absolutely diagnostic only when demonstrated in tissue or cultured from the uncontaminated tissue or exudate from closed body spaces. On the other hand, a culture of Blastomyces dermatitidis, Histoplasma capsulatum, Coccidioides immitis, and Cryptococcus neoformans can, for practical purposes, be considered diagnostic of the respective disease.

Examination of the sputum for malignant cells, though a recent innovation, has become a fairly dependable method of early diagnosis. Specimens consist of either bronchial secretions obtained by bronchoscopy or sputums raised by a single, deep, early-morning cough. Bronchoscopic washings serve more or less to indicate the specific locality of the lesion but seem to exhibit no additional superiority, whereas sputum has the advantage of being easily obtained. This is of particular significance, for it has been shown that repeated studies of different specimens double the percentage of positive results.[5] Thus, in only 35% of all cases will one cytological study confirm the diagnosis, while at least 60 to 70% of cases will be confirmed by a series of five sputum examinations. This latter procedure appears to have its greatest value in checking for upper lobe lung lesions and those in the periphery, particularly those of the Pancoast variety,[6] since the bronchoscope is worthless for examining such areas. Operable cases, opportunely enough, seem to have a higher positive yield than inoperable ones.[6c] The sputum method is seldom helpful in cases of bronchial adenoma,[7] for the mucosa over the tumor is generally intact; but with alveolar cell carcinomas, characteristic columnar or cuboidal, mucous-secreting cells are frequently demonstrable in the sputum.[6a] Gastric washings and bronchial lavage afford a suitable source of culture material in tuberculosis suspects who are unable to raise sputum.

Bronchoscopy.—This diagnostic method has a limited but valuable field of service. It is useful in ascertaining the endobronchial status of patients with tuberculosis, particularly those in whom resective surgery is contemplated. Although it would appear hazardous to transect the bronchus through an area of active endobronchial disease, a recent study has shown no correlation between the presence of endobronchial disease preoperatively and the occurrence of bronchopleural fistula and empyema postoperatively.[8] Previous estimates of the value of bronchoscopy in the diagnosis of bronchiogenic carcinoma must be revised in the light of recent surveys. It is now apparent that a positive bronchoscopic finding will be obtained in slightly less than 50% of patients examined,[9] a figure much lower than formerly quoted. Although it is impossible to visualize most of the peripheral lesions by bronchoscopy or even to examine by biopsy the apical lesions that can be visualized, the bronchoscope is the best established means of obtaining a definite diagnosis. Moreover, it may supply valuable information as to the integrity of the vocal cords, fixation of the trachea, or evidence of carinal involvement, either directly or by broadening of the angle of the carina due to subcarinal node involvement.

Skin Tests.—These tests have a considerable importance in the diagnosis of pulmonary disease. A positive tuberculin test indicates the occurrence of tuberculosis either past or present and is of greatest significance in childhood, since such a finding points to a recent infection. A Mantoux test, utilizing the intracutaneous technique, is the most accurate method and is sufficiently specific so that a negative test is of diagnostic significance in helping to rule out tuberculosis except in obviously moribund patients.[10]

Antigens similar to tuberculin have been prepared from cultures of B. dermatitidis, C. immitis and H. capsulatum. Sensitivity to both coccidioidin and histoplasmin regularly accompanies coccidioidomycosis and histoplasmosis, although in instances of disseminated disease patients often become anergic. Blastomycosis is more variable in its ability to induce sensitivity [11]; thus, a negative blastomycin skin test does not entirely eliminate the possibility of this disease. In the case of coccidioidin, it has been demonstrated that an abrupt change from a negative to a positive reaction in a 1:1000 dilution is diagnostic of a recent infection.[12]

Complement Fixation Tests.—In contrast to the results of the skin test, complement fixing antibodies may not appear in subclinical coccidioidomycosis and histoplasmosis. In the disseminated type of coccidioidomycosis, histoplasmosis, and blastomycosis, a positive complement fixation test is regularly produced and persists even when the patient becomes anergic and the skin test is negative. The complement fixation test is therefore of prognostic significance, since with the patient's recovery the titer gradually falls.[13] Skin testing surveys of healthy persons with negative histories demonstrate the widespread occurrence of subclinical cases of coccidioidomycosis and histoplasmosis. Moreover, skin testing of a great number of persons with radiographic evidence of pulmonary calcifications formerly attributed to tuberculosis reveals that many of these calcifications are due to coccidioidomycosis and histoplasmosis respectively, as indicated by a postive test for the mycosis and a negative tuberculin test. The complement fixation test is unreliable for tuberculosis; and while the Middlebrook-Dubos hemagglutination test is of no value in diagnosing tuberculosis,[14] there is evidence both for [14] and against [15] its help in ruling out the disease.

Roentgenography.—Roentgenography represents the most valuable single diagnostic implement. This point is forcibly brought home by the vast number of cases of active pulmonary pathological conditions, without associated symptoms, detected in x-ray surveys. In addition to the routine posteroanterior view, the lateral and oblique views are also extremely important. The lateral view is essential to determine the bronchopulmonary segment involved. Oblique views are also valuable in this respect and in revealing lesions within the mediastinum and in those relatively invisible areas of the lung below the dome of the diaphragm and behind the heart. A posteroanterior view taken in full expiration will accentuate a pneumothorax and demonstrate varying degrees of obstructive emphysema. Small pleural effu-

sions that are invisible on both posteroanterior and oblique views may be clearly revealed by x-ray films in the lateral decubitus position. What appears to be an elevated diaphragm may be shown, by the lateral decubitus roentgenogram, to be a basal collection of fluid.

Body section radiography will often delineate neoplasms from, or demonstrate their attachments to, surrounding structures, but its chief value lies in the detection of cavities that are invisible or doubtful on conventional roentgenograms. It is especially useful in demonstrating apical tuberculous cavities and bronchostenosis and in studying the lung under a thoracoplasty.

Tomograms aid in judging the approximate distance of any lesion from the pleura, a point of some importance both in differential diagnosis and in preoperative determination of the feasibility of a wedge resection. Recently, it has been noted that on a conventional posteroanterior roentgenogram it is often possible to determine the anteroposterior depth of a lesion that overlaps the cardiovascular structures.[16] This is based on the premise that a lesion will obliterate only that border of the heart or aorta to which it is anatomically contiguous, leaving unobscured any border free of contact. This so-called "silhouette sign" [17] is no substitute for lateral views or tomography; nevertheless, it is fascinating to realize that a positive silhouette sign in relation to either border of the heart or ascending aorta usually places the lesion anteriorly and that the obliteration of the aortic knob margin indicates the superimposed disease lies either in the apical-posterior segment of the left upper lobe or in the mediastinum adjacent to this segment.

The Potter-Bucky diaphragm gives deeper penetration of dense shadows, assisting in differentiation of fluid, atelectasis, and consolidation and clarifying detail within areas of bronchiectasis, consolidation, and neoplasms. Lordotic views are helpful in demonstrating lesions behind the clavicle and the first rib. Serial films are essential in following the progress of the disease.

Bronchography is of particular help in the diagnosis of bronchiectasis but is also a valuable adjunct in some cases of tuberculosis, lung abscess, and bronchogenic carcinoma. Since tuberculous bronchiectasis is now known to accompany old apical disease frequently [18] and seems to be responsible for many thoracoplasty failures, in order to anticipate the possibility of such complications it would appear imperative that a bronchogram be obtained prior to thoracoplasty. However, the persistence of the iodized oil in the lungs for prolonged periods following the bronchographic examination has severely restricted the usefulness of this procedure through the fear that subsequent changes in the character of the disease might not be detected because of the residual oil. This objection appears recently to have been completely overcome by the development of a water-soluble contrast medium, "ioduron B," [19] (the morpholine salt of 3:4 diiodo-4-pyridone-N-acetic acid) which has been shown to be totally eliminated from the tracheobronchial tree within 24 hours following bronchography.

Bronchography has afforded so precise a knowledge of the bronchopulmonary segments of the lung that it is now possible to apply fairly accurately the segmental anatomy to plain roentgenograms. For this purpose the posteroanterior x-ray film must be supplemented by a lateral view. The importance of the bronchopulmonary segment thus revealed is far more significant than mere surgical dissection [20]: A lesion that can be identified by the lateral view as a contracted pulmonary segment indicates bronchial obstruction and emphasizes the need for rapid treatment; a tuberculous lesion interpreted as improved may upon lateral view be recognized as segmental collapse secondary to endobronchial disease. Some feel that the presence of a shadow of unknown cause in any anterior segment other than the middle lobe is more likely to prove malignant than elsewhere in the lungs [20]; but with middle lobe collapse alone, which is often referred to as middle lobe syndrome, there are numerous reports attesting to the predominantly inflammatory nature of such lesions.[21]

Fluoroscopy is not a substitute for x-ray examination. While fluoroscopy permits the detection of gross abnormalities, it does not reveal the fine detail so necessary for a correct diagnosis. By examining the patient in multiple projections during deep inspiration, expiration, cough, swallow, sniff, and Valsalva and Müller maneuvers, much valuable information can be obtained. Hilar descent on inspiration may be a sign of emphysema. A small pneumothorax may not be visible except on expiration. Coughing will light up the apexes of the lungs if they are normal. Swallowing may demonstrate a connection of a lesion and the trachea. A simple sniff demonstrates paradoxical motion of the diaphragm. The Valsalva maneuver may decrease the size of an arteriovenous aneurysm, while the reverse mechanism, a Müller procedure, should distend the arteriovenous aneurysm with blood and thus increase the size of the vascular mass.[22] By moving the patient through multiple projections, mediastinal tumors may be distinguished from the arch of the aorta and other structures. Diaphragmatic excursions should be closely observed, for, in the absence of bronchospasm, restriction of diaphragmatic motion appears to be the most valuable radiological index of the degree of emphysema.[23] A barium study, besides supplying information relative to the esophagus itself, will elucidate the relationship of a lesion to the esophagus. Also, in the case of mediastinal tumors, the presence or absence of pulsation should be noted, and, if a pulsation is present, it may be possible to determine whether the pulsation is inherent or merely transmitted. Such distinctions are frequently erroneous, however, owing to the failure of aneurysms containing laminated clot to pulsate and to the semblance of inherent pulsations in solid masses in close proximity to the aorta or other cardiovascular structure.

Angiocardiography has proved of limited value in relation to chest diseases. By outlining cardiovascular structures juxtaposed to the invisible margins of mediastinal tumors, it is possible to delimit the mass more accurately as well as to rule out the possibility of aneurysm.[24] This is the greatest value of angiocardiography to us. A high degree of diagnostic accuracy is also afforded in cases of arteriovenous aneurysm of the lung,[24] and there is at least one report in which angiocardiography revealed a small bronchogenic carcinoma that was invisible on both routine roentgenograms and bronchoscopy.[25] Although some encouraging work was originally carried out showing the value of angiocardiography in the diag-

nosis of lung cancer,[26] it now appears that its chief use may be in the assessment of operability.[27]

Pneumothorax and Pneumoperitoneum.—Pneumothorax and pneumoperitoneum occasionally serve a diagnostic purpose, pneumothorax as a means of distinguishing intrapulmonary from extrapulmonary masses and pneumoperitoneum as a means of demonstrating diaphragmatic hernias.[28]

Tissue Biopsy.—The biopsy of accessible lymph nodes is an extremely important diagnostic procedure. The term accessible must now be extended to include the scalene nodes, which are apparently involved early in the course of many diseases and afford a valuable source of positive biopsies.[29] Liver biopsy is also rewarding in many granulomatous diseases, including tuberculosis, sarcoidosis, and the mycoses.[30] Sternal marrow biopsy has proved of diagnostic value in similar circumstances.[31] A recent report stressed the worth of muscle biopsy in demonstrating the noncaseating tubercles of sarcoidosis.[32] Aspiration biopsy of the lung has been relegated to a place of dubious merit in the diagnosis of pulmonary conditions because of the various hazards attending its use. In cases of carcinoma the hazard of carcinoma seeding along the line of needle puncture is sufficiently real to nullify whatever good results are obtained.

Because many of the granulomas cannot be safely diagnosed on histological grounds alone, it is extremely important that biopsy material from all of the above sources should in every instance be obtained under sterile conditions and cultured on Sabouraud's dextrose agar in addition to other media, for by this means some institutions are uncovering a startling number of unsuspected mycotic diseases.[33] By means of the Hotchkiss-McManus stain it is becoming apparent that many of the nonspecific pulmonary granulomas are in reality mycoses in which the fungi were not previously recognized.[34]

Exploratory Thoracotomy.—In a substantial number of patients with bronchogenic carcinoma, variously estimated at 15% [35] to 30% [36] of persons with pulmonary disease, no definite preoperative diagnosis can be established despite the use of all the diagnostic procedures available. It is imperative, therefore, that, if the completed diagnostic work-up permits no definite conclusion to be reached and if the lesion shows no regression, exploratory thoracotomy should be quickly carried out. This is also true of solitary indeterminate pulmonary nodules, all of which were once presumed to be benign but as many as 55% of which are now demonstrated to be malignant.[37] While it is true that a certain number of these lesions will be noncancerous, in many cases resection is nevertheless the treatment of choice and in the others the advantages of obtaining a correct diagnosis probably supersede the hazards of exploration.

Therapeutic Trial.—Some pulmonary conditions, because of their nature, demand prompt therapy; it is therefore permissible, and sometimes advisable, to institute a course of antibiotic therapy as an empirical therapeutic trial. Although diagnostic irradiation has been utilized in relatively small test doses in mediastinal tumors, particularly in those anteriorly situated, with a response being interpreted as indicative of the lymphomas, there is some objection to any such routine procedure. The diagnosis remains undetermined and, strictly speaking, cannot be limited to lymphomas, since thymomas may also respond to irradiation. A more rational procedure would appear to be the exploration of undiagnosed mediastinal tumors, with excision of those that are resectable and biopsy of the remainder. Once a definite diagnosis has been established on histological grounds, further management in the case is tremendously simplified and the patient may be greatly benefited.

MODERN THERAPEUTIC METHODS

Antimicrobial Therapy.—The antibiotics rank as the greatest boon to the management of chest diseases since the discovery of the roentgen ray. With the advent of sulfonamides, the mortality rate in lobar pneumonia was reduced to less than 10%. Sulfadiazine continues to have a wide field of usefulness, although with the development of the broad spectrum antibiotics it has been less often prescribed. It does, however, remain the drug of choice in the treatment of nocardiosis. Penicillin still further reduced the mortality rate in lobar pneumonia. By both parenteral and aerosol routes of administration it is quite effective in the treatment of lung abscess, pneumonia, bronchiectasis, and actinomycosis. In general usage, however, it is in danger of being replaced by aureomycin, chloramphenicol, and terramycin, which have the advantages of a broad antibacterial spectrum and oral administration. Streptomycin, in addition to its suppressive action on tuberculosis, is effective in the treatment of both tularemic and Friedländer's pneumonia, but here again the broad spectrum antibiotics are as effective. Furthermore, the latter drugs appear of value in the treatment of primary atypical pneumonia, influenza, Q fever, and psittacosis, all of which have heretofore proved unresponsive to chemotherapy.[38] In infections by fungi other than the Actinomycetes, the antibiotics are ineffectual, in spite of a recent report to the contrary.[39]

In the treatment and management of tuberculosis, streptomycin is the most outstanding advance yet made. The tuberculostatic effect of this drug is especially potent in the acute exudative phase of infection and least efficacious in chronic fibrocavernous stages of the disease; nevertheless, when streptomycin is used in conjunction with collapse measures, many patients classified in the latter tuberculous group have shown a gratifying response to therapy, though it is clear that the drug has not "cured" the disease. Extrapulmonary tuberculosis has shown a similar response to streptomycin, and the excision of tuberculous cervical lymph nodes under the suppressive influence of the antibiotic is now almost uniformly satisfactory.[40]

The development of streptomycin resistant strains of organisms has been a great problem, but the concomitant administration of para-aminosalicylic acid has markedly delayed the emergence of resistant strains,[41] especially when a schedule of intermittently administered streptomycin is followed.[42] It is now generally agreed that a program of streptomycin (1 gm. twice weekly) administered concurrently with para-aminosalicylic acid (12 gm. daily), preferably for prolonged periods of time, constitutes the regimen of choice,[43] although some authorities still feel that a daily program of streptomycin is definitely superior. In patients requiring surgical treatment, the use of streptomycin should be reserved for the pre-

operative and postoperative periods whenever possible, for the presence of any resistant strains of organisms may result in such disastrous complications as transbronchial spread, reactivation, or bronchopleural fistula with empyema.[5] At the time of surgery the dose of streptomycin may be increased to 1 gm. daily to advantage. Vertigo, usually with ataxia, is the commonest toxic manifestation of streptomycin therapy, but its incidence has been significantly lowered by the program of intermittent administration.[42] Dihydrostreptomycin, although less prone to produce vertigo, is less effective than streptomycin therapeutically and, in addition, is more prone to produce deafness.[42] Para-aminosalicylic acid has a distinct suppressive effect of its own, as does amithiozone ("tibione"), but the toxicity of the latter has precluded its extensive use. However, in the search for similar agents without the toxic side-effects, various highly promising isonicotinic acid hydrazides have been developed. Despite the rapid accumulation of favorable results with their use, it is much too early to issue a definite statement as to the value of this group of compounds.

Iodides.—While it is true that potassium iodide has long been regarded as a therapeutic adjunct in the treatment of many of the pulmonary mycoses, including blastomycosis, actinomycosis, nocardiosis, cryptococcosis, and moniliasis,[11] yet the value of the drug should not be overestimated.[44] Moreover, in patients with blastomycosis and other mycoses characterized by strongly positive skin tests, iodide therapy may actually cause a severe exacerbation; hence, it is important that such persons be desensitized prior to receiving iodides. Also, the use of iodides in a patient who has had a negative complement fixation test may precipitate disseminated disease because of the person's lack of antibodies to counteract fungi liberated during the resolution of iodide therapy,[45] and such persons should first be actively immunized with a heat-killed vaccine made from the yeast phase of B. dermatitidis. In the treatment of histoplasmosis and coccidioidomycosis, iodides are of no known value. The effectiveness of intravenously administered sodium iodides in decreasing the viscosity of the bronchial secretions and thus preventing postoperative atelectasis and resultant pneumonitis has recently been elucidated [46] and deserves clinical application.

Diamidines.—In a few instances 4,4-stilbenedicarboxamidine ("stilbamidine") has been shown to be of value in the treatment of disseminated blastomycosis, coccidioidomycosis, and nocardiosis.[47] It has proved unsuccessful in the treatment of histoplasmosis,[48] after an initial burst of therapeutic enthusiasm.[49]

Cortisone and Corticotropin (ACTH).—The value of cortisone and corticotropin therapy in bronchial asthma is well established, and its use in a number of respiratory conditions, including sarcoidosis,[50] berylliosis,[51] silicosis,[51b] Loeffler's syndrome,[52] and diffuse interstitial pulmonary fibrosis,[53] has resulted in a few isolated reports of improvement. At the same time it is well to interject a word of caution regarding this form of therapy, as has the National Tuberculosis Association,[54] because of the many reports of disseminated tuberculosis coincidental to cortisone and corticotropin administration.[55]

Enzymatic Débridement.—Streptokinase, which is a catalyst in the activation of a fibrin lysing system, and streptodornase, a lytic enzyme, have had a brief trial in the management of hemothorax and empyema.[56] These substances work by surface action only, liquefying fibrin and desoxyribonucleoprotein without affecting living tissue. When introduced into a clotted hemothorax they often afford a satisfactory means of enzymatic decortication. In chronic empyemas, both postpneumonic and tuberculous, the substances are effective in liquefying thick, purulent material so that it can be readily aspirated. Antibiotics may then gain easy access to the source of infection, the formation of healthy granulation tissue is facilitated, and thoracoplasty can be more effectively performed. In tuberculous empyemas these biologicals may be dangerous should a bronchopleural fistula exist. Since the lysis of organized adhesions is impossible, streptokinase and streptodornase have a limited use and are adjuncts to, rather than substitutes for, surgery.

Bronchoscopy.—Bronchoscopy is a therapeutic procedure of immense value in the extraction of foreign bodies, drainage of lung abscesses, and aspiration of tracheobronchial exudate responsible for postoperative atelectasis. Bronchoscopic excision of bronchial adenomas is feasible when the tumors are pedunculated or at least free of extrabronchial extension,[57] but any attempt at endoscopic removal of those adenomas with extrabronchial extension is contraindicated by present knowledge of the malignant transformation that these tumors tend to undergo.[58] Adenomas at the carina, as well as those in patients considered poor risks for extensive surgery, are justifiably removed through the bronchoscope.

Collapse Measures.—Regarding collapse measures in the management of tuberculosis, there has been a distinct trend away from the use of pneumothorax.[59] This procedure, while still of value in selected cases, has been associated with so many complications and unfortunate sequelae that it has largely fallen into disrepute. All too frequently the patient is left with a thickened pleura and contracted lung or a chronic tuberculous empyema. Pneumoperitoneum on the other hand has been associated with a minimum of complications and has been a surprisingly effective measure in affording pulmonary relaxation. It is a safe, simple procedure and has a wide range of applicability. Beneficial effects are also reported in some cases of emphysema.[60] Diaphragmatic paralysis by phrenic nerve crush affords an additional though limited therapeutic tool in tuberculosis; and just as with other collapse measures, considerable controversy centers around the indications for this procedure and the advisability of combining it with pneumoperitoneum.

Surgery in Lung Abscess.—The cardinal tenet in the treatment of a lung abscess is the establishment of adequate drainage. When internal drainage cannot be achieved spontaneously or by strenuous postural and bronchoscopic means, the need for surgical intervention is well recognized. With improvement in operative technique, surgical drainage was largely replaced by resection; and so uniformly good were the results that it was soon claimed that an acute lung abscess was primarily a surgical problem from the outset.[61] The fallacy of this concept has been repeatedly demonstrated in the high cure rate afforded by an intensive medical regimen.[62] Surgery is safely delayed if the process shows steady im-

provement under medical management. Chronic lung abscesses and abscesses with satisfactory drainage that fail to show regression under intensive parenteral and aerosol antibiotic therapy should be resected. The so-called shut-off abscess demands prompt surgery.[63] About 10% of all bronchogenic carcinomas present a solitary cavity [64] that justifies a prompter recourse to surgery when dealing with abscesses in men over the age of 40 in whom the possibility of a malignant growth cannot be ruled out.[65]

Surgery in Bronchiectasis. — Aerosol penicillin has been especially useful in the treatment of bronchiectasis, since more effective control of infection may be maintained by this method than by systemic administration of the drug. However, there is no definitive treatment for bronchiectasis except through surgical excision of all diseased bronchopulmonary segments. With localized disease, a lobectomy or segmental resection may be curative. Even with bilateral disease, multiple segmental resections are sometimes feasible and have yielded good results.[66] Though this method is applicable in well selected cases, it is imperative to recognize that ectasia undemonstrable by bronchography may exist in nonresected segments.[67] Even so, it appears that patients with severe bronchiectasis can be greatly improved by resection of the more markedly involved segments.

Surgery in the Mycoses.—In view of the predilection for lung involvement that most of the pathogenic fungi exhibit, it is not surprising to note the increasing frequency with which they are being encountered at exploratory thoracotomy and apparently cured by resection.[68] The typical, thin-walled, residual cavity that is a peculiar characteristic of coccidioidomycosis has rendered it a favorite target of the surgeon. Despite the good results obtained by Cotton,[69] surgical intervention should not be regarded lightly. Under conservative management about 25% of these cavities will close spontaneously; and of the 30 to 40% that produce symptoms, most are amenable to pneumoperitoneum or pneumothorax.[70] Cavities that do not respond to medical management should be resected when symptoms warrant.

Surgery in Bronchogenic Carcinoma.—In the detection and treatment of bronchogenic carcinoma lies our greatest source of dismay, for the results obtained in these cases have indeed been discouraging. As high as 50% of such lesions are inoperable when first seen,[71] only 30% of them are resectable,[72] and only 6% of the patients survive five years.[9b] With carcinomas of the undifferentiated type, surgery is practically worthless.[73] Pneumonectomy, with concomitant regional node dissection, constitutes the accepted procedure. I question the notion that more radical surgery is the answer,[74] for the evidence points toward a single source of more effective therapy, namely, earlier diagnosis. Overholt [75] has shown that in the early, asymptomatic group a 40% five year survival rate is possible. Whether such results will ever be achieved is doubtful, since there has been no significant decrease of the lapse from onset of symptoms to establishment of the diagnosis, so that usually 10 or 11 months elapse before appropriate therapy is begun.[76]

It must not be overlooked that lobectomy, notwithstanding the associated inaccessibility of the mediastinal nodes and the danger of cancer in the remaining lobe, is occasionally preferable in old patients whose poor respiratory reserve portends an operative death or postoperative respiratory crippling. It is interesting to see an occasional report lauding lobectomy in unusual cases in which blind adherence to an established surgical precept is unjustifiable.[77] Moreover, there is some indication that the survival rate after pneumonectomy may not be a great deal better than that following lobectomy.[78]

Palliative Measures in Bronchogenic Carcinoma.—Despite occasional ill effects, such as from radiation fibrosis, irradiation continues to be the most effective palliative measure for inoperable cases of bronchogenic carcinoma. Although adenocarcinomas do not respond to this form of therapy, the epidermoid type of bronchogenic carcinoma is somewhat radiosensitive and the undifferentiated variety may be as responsive as lymphomas. Oat cell carcinomas, for example, may exhibit a striking response to irradiation doses far short of cancerocidal levels.[79] The over-all picture is not good, however, and rarely does a cure result. Nitrogen mustard represents a systemic adjunct to roentgen therapy when the latter is no longer feasible or effective. About 75% of patients show a subjective response, and as many as 50% exhibit evidence of objective improvement.[80] The effect is transient, and there is no significant prolongation of life. In instances of superior vena caval obstruction, the results may be particularly dramatic.

Pneumonectomy for persons with extensive carcinoma has been proved of value by Ochsner,[81] who found these patients to be spared the sepsis of the terminal phase of the disease and to have a slightly prolonged period of survival. Whether the value of palliative resection balances out the cost of surgery, the operative risk, and postoperative morbidity is debatable.

Surgery in Bronchial Adenoma.—Resection of bronchial adenomas is advisable in the light of their malignant potentialities.[58] Lobectomy is generally utilized, but a segmental resection will often suffice. Transpleural bronchotomy, as recommended by Goldman,[82] is an effective mode of excision.

Surgery in Other Intrathoracic Neoplasms.—The advisability of resecting all solitary, circumscribed, indeterminate pulmonary lesions has been previously referred to. That they are calcified is suggestive of their benignancy [83] but does not preclude the need for surgery. Arteriovenous aneurysms should be resected because of the sometimes severe symptoms and the possibility of serious complications, including lethal hemorrhage and cerebral air embolism.[84] However, the tendency toward multiple telangiectasia warrants the preservation of as much pulmonary tissue as possible in the event of further surgery.[85] Hamartomas are completely benign tumors that unfortunately cannot be diagnosed with certainty preoperatively.[86] The only available therapeutic approach to alveolar cell carcinomas is surgical, but the multifocal origin of these tumors will probably prevent any long-range benefit by this means. Malignant transformation occurs in about 12% of mediastinal tumors, and for this reason a complacent attitude toward them is unwarranted. Contrary to popular belief, pleural mesotheliomas are more often localized than diffuse [87] and are thus amenable to surgery.

Surgery in Pulmonary Tuberculosis.—Resection for pulmonary tuberculosis was accompanied by forbidding mortality and complication rates in the prestreptomycin era, but resections have now assumed a definite place in the treatment of this type of tuberculosis. While thoracoplasty is a firmly established means of controlling the majority of upper lobe lesions, there have evolved certain situations in which it appears doomed to failure. Tension cavities, thick-walled cavities, tuberculous bronchiectasis, or a destroyed lung cannot be obliterated by thoracoplasty. In exudative processes or tuberculomas, thoracoplasty is definitely dangerous. With lower lobe cavities or with cavities near the hilum, an excessive amount of functional lung tissue must be destroyed to warrant the use of thoracoplasty. In all such instances, excisional surgery appears to be the procedure of choice and consists of lobectomy, pneumonectomy, or segmental resection, depending on the character of the disease and the preference of the surgeon. In addition, many groups of specialists are pursuing so-called elective resections; that is, in cases in which thoracoplasty might likely suffice, they nevertheless elect to do a resection. The over-all results of resection show a high rate of conversion of sputum to negative. Mortality and morbidity rates now approximate those of thoracoplasty, with at least three groups of specialists having attained an operative mortality rate of less than 4%.[88] In instances of thoracoplasty failure, resection of the underlying disease has often been lifesaving. Although thoracoplasty is useful in obliterating an empyema space, decortication with resection of the underlying diseased lobe or lung appears to be the procedure of choice in handling most instances of chronic empyemas with unexpandable lung and little significant contralateral disease.[89] All extrapleural plombage techniques have the common fault of introducing foreign bodies. The periosteo-plastic pneumonolysis of Edwards,[90] because it avoids the hazards of foreign bodies, would appear, at least on theoretical grounds, to be the superior procedure and may well attain a position of some importance in the future.

The proper management of the patient with a minimal lesion remains a problem, since it is impossible to determine whether the lesion will resolve or become a caseous focus of smoldering disease from which disabling disease may later develop. Early intensive rest may be successful in halting the progress of the disease, and resolution of the exudate usually follows in areas in which irreversible tissue damage has not occurred. Medlar [91] has advanced the idea that tuberculous foci in the apical and posterior portions of the various lobes often became caseous, are abscesses that never heal completely, and harbor the constant danger of liquefaction and sloughing of their necrotic centers into the connecting bronchus. He cites the common finding at necropsy of fibrocalcific nodules in the lower and anterior portions of the pulmonary lobes of persons who have died from other causes as ample proof that tuberculous foci in these areas seldom slough but very commonly heal. On these grounds the Trudeau group have been performing so-called wedge resections of necrotic tuberculous processes situated in the apical and posterior portions of the lung. This study, which is as yet small, seems, nevertheless, to have produced excellent results, and there is evidence that the lesions left behind in anterior and inferior portions of the various lobes rarely cause difficulty.[91] The results supply some promise in the management of that group of chest patients predisposed to relapse. Of course, certain of these lesions are actually tuberculomas, and such nodules are known to respond to no type of medical therapy. They may arise from encapsulation of a large primary focus, from encapsulation of a restricted reinfection focus, or from complete blockage of a tuberculous cavity.[92] They may persist for years without apparent change, then suddenly cavitate and spread.[93] If they are subpleural in position, a wedge resection may suffice to eliminate them; otherwise, a segmental resection or lobectomy will be required.

The Tuberculosis Problem.—Since the isolation of every tuberculosis patient is socially and economically impossible and since many persons in the advanced stages of the disease are unresponsive to any form of therapy, it stands to reason that only by the discovery and treatment of the early case can the ultimate conquest of tuberculosis be effected. Mass x-ray surveys have contributed immeasurably toward this end. At the same time the number of new-found cases, coupled with the decided decrease in the disease mortality rate, has created an increased need for additional beds. That need has now reached alarming proportions and constitutes a major problem in tuberculosis control.

No less significant is the group of elderly tuberculous persons whose disease is less explosive and whose symptoms are mild, but who, because their condition is unrecognized, constitute a dangerous source of infection. They have been aptly termed the "disregarded seedbed of tubercle bacillus," [94] among whom a particularly vigorous case finding program is indicated.[95] Although a recent study has failed to corroborate this view,[96] I am in full-hearted agreement that this potential source of disease must not be neglected, for it is in those persons over 65 years of age that the mortality rate has shown the least decline over the years.

While the new therapeutic methods have been of tremendous assistance in combating tuberculosis, they have simultaneously rendered the old sanatorium an outmoded dormitory that supplies little more than bed rest and a proper diet. Extensive laboratory facilities and modern medical and surgical services are required for proper treatment, and these are provided primarily in urban general hospitals. The trend today is either to devote a part of a general hospital to the diagnosis and treatment of tuberculosis or to establish a close relationship with some clinic or organization for which the facilities of the general hospital will be available. I cannot overemphasize this need, for such an arrangement will not only afford a more effective study of, and efficient service to, the patient but will also remove the undeserved stigma that attends hospitalization in a sanatorium.[97]

Needless to say, the ultimate aim of any antituberculosis program is the rehabilitation of the patient. Throughout the long days of therapy the patient must be imbued with a belief in his ability to resume a normal life. The convalescent may be seasoned to a work tolerance by light jobs about the hospital alternated with appointed

hours of rest. At least 50% of patients are returning to former occupations, either full or part time. For those unable to resume former activities, guidance is required in fitting them for new work that will utilize as far as possible their former training. This must be as much the physician's concern as is the treatment of the disease.

As a final consideration in the prophylaxis of tuberculosis, there is probably no subject to which greater discussion has been devoted and, at the same time, no subject so poorly understood as that of BCG vaccination. Some regard it as a panacea,[98] yet there is considerable evidence that this vaccination is a poor substitute for the time proved methods of tuberculosis control that have attained so enviable a record for this country. A number of highly competent authorities have warned us of the grave dangers inherent in the BCG program as we now know it.[99] Experimental data to prove the harmlessness of BCG in man are practically nonexistent, while the potency of the vaccine is quite variable. Moreover, by employing such a program universally we would lose one of our most valuable diagnostic weapons, the tuberculin test, for all tests would then be positive. The presence of a postive test indicates only allergy and should not be construed as immunity, for by contrast it comprises a fundamental requisite for, rather than against, tuberculosis. Suffice it to say that there is as yet insufficient evidence to justify a universal program of BCG vaccination.

SUMMARY AND CONCLUSIONS

It is indeed an enviable record that has been achieved in the diagnosis and treatment of diseases of the chest. There has been evolved a most ingenious group of diagnostic procedures and with them a greatly improved knowldege of respiratory disease. Where we were once content to diagnose bronchogenic carcinoma rarely, tuberculosis only in the moderately advanced stage, and bronchiectasis by such late signs as cavernous breathing at the base, fixation of the chest, and cyanosis, we have advanced to the point where they can detect these diseases in the earliest stage. Drugs have been discovered that have brought many of the deadliest diseases under the therapeutic yoke. The antibiotic age has permitted an ever increasing application of surgical measures whereby irreversibly diseased tissues have been excised easily, fearlessly, and successfully.

Bronchogenic carcinoma remains our greatest problem. However, an ever-increasing index of suspicion, the mass application of diagnostic procedures, and a ready recourse to surgery hold promise of improvement in this regard. Meanwhile, a host of other tumors have become curable. Of the infectious diseases, tuberculosis is no longer the death warrant it once was, owing to a happy combination of conservative and surgical measures. Even bilateral bronchiectasis in selected instances may be eradicated. Only certain of the mycoses have completely resisted medical attack.

Filled with advancement as these past decades have been, they nevertheless stand to be eclipsed by the improvements of the future. I am confident that our diagnostic and therapeutic achievements will continue and that the day will come when no pulmonary disease will evade our inquiring eye nor escape our curative touch.

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RESULTS OF SURGICAL TREATMENT OF DUODENAL ULCER

COMPARISON OF VAGOTOMY AND SUBTOTAL GASTRECTOMY FIVE YEARS POSTOPERATIVELY

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During the past 15 years subtotal gastrectomy has become accepted as the standard operation for the definitive treatment of chronic duodenal ulcers that require surgical intervention, and it has become the yardstick by which all other procedures are judged. During the past 10 years vagotomy with or without gastroenterostomy has been added as an alternative method of correcting the complications encountered in patients with duodenal ulcer. Surgeons are generally agreed that definitive operations are indicated in only about 15 to 20% of all duodenal ulcers, and surgical therapy is employed chiefly in the management of the complications of long-standing ulcer disease, i. e., obstruction, perforation, hemorrhage, and intractability.

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Read before the Section on Gastro-Enterology and Proctology at the 101st Annual Session of the American Medical Association, Chicago, June 10, 1952.

1. Dragstedt, L. R., and Camp, E. H.: Follow-up of Gastric Vagotomy Alone in the Treatment of Peptic Ulcer, Gastroenterology **11**: 460, 1948.

RESULTS AFTER VAGOTOMY

In any disease with spontaneous exacerbations and remissions it is imperative that conclusions be drawn only after long-term follow-up. Although it is now well established that 60 to 70% of recurrences following gastroenterostomy will have manifested themselves within two years of the time of surgery, no such period of time has been established for vagotomy alone or in combination. Although numerous reports on the short-term effects of vagotomy have appeared in the literature, there have been no reports dealing with long-term results alone. Dragstedt and Camp [1] have reported on 55 patients followed for two and one-half to five years. Forty-five (82%) of these were considered to manifest satisfactory results at the time of their report. Moore [2] reported satisfactory results in 97 (84%) of 116 patients after having followed them for 5 to 45 months. Grimson and co-workers [3] reported on 36 patients followed from 13 months to 4 years, and felt that only 23 (64%) had satisfactory results. These reports all dealt with the re-

sults of vagotomy alone. Reporting on the results of vagotomy plus pyloroplasty or gastroenterostomy Grimson and his associates [3] said 100% of 29 patients had satisfactory results 13 months to 4 years after their operation. Walters and co-workers [4] reported on 75 patients followed from one month to three years, and found 67 patients (89%) to have satisfactory results.

Recently Stein and Meyer [5] reported on 40 patients with duodenal and anastomotic ulcer who were followed for 28 to 50 months after vagotomy. They reported 65% had good results, 25% fair, and 10% poor. Only 28 of these patients had been followed for more than 36 months.

The use of vagotomy in the treatment of duodenal ulcer is now reaching the stage where relatively long-term follow-up can be reported and significant conclusions drawn as to its effectiveness in treatment. The first part of this report will deal with the course of all patients undergoing vagotomy at the University of Michigan Hospital during the one year period from July, 1946, to July, 1947. There were 38 such patients, and all have been followed annually from the time of their operation to the present date, five years later. Thirty-five of the patients were men and only three women. The ages ranged from 25 to 66, with the average age being 49. All patients had chronic recurrent ulcers. Clear-cut indications for surgery were present in all cases. Eighteen patients (47.3%) had symptoms and x-ray evidence of duodenal ulcer for two or more years prior to surgery. They had all been on what was considered to be adequate medical therapy without satisfactory relief of pain. None of these patients had other complications, such as bleeding, obstruction, or perforation. Of the remaining 20 patients, 8 (21%) had recurrent episodes of bleeding, 5 (13.1%) had persistent symptoms of obstruction with x-ray confirmation, 4 (10.5%) had prolonged ulcer histories with perforation, 2 (5.3%) had histories of bleeding and had obstructions, and one patient (2.6%) had a history of perforation and had obstruction when seen at the University Hospital.

Twelve patients had been subjected to vagotomy alone. In seven the transthoracic approach was utilized, and in five abdominal vagotomies were performed. Twenty-one patients had vagotomy plus posterior gastroenterostomy or pyloroplasty. Three patients underwent vagotomy with subtotal gastric resection, and two patients had vagotomies alone after previously having had gastroenterostomies with formation of marginal ulcers.

Preoperative and postoperative insulin (Hollander) tests were done on 33 of the 38 patients. A test was considered negative if the blood sugar level fell below 40 mg. per 100 cc. and there was no concomitant rise in free gastric acid. If the rise was less than 10 clinical units, the test was considered inconclusive, with questionable partial vagus function. If the rise in gastric acidity was greater than 10 clinical units, the test was considered to be positive. Twenty-four (72.7%) had negative results of postoperative tests, five (15.2%) had positive results of postoperative tests, and four (12.1%) had inconclusive results or showed evidence of partial vagal function. There was no correlation of definite recurrence of ulceration with the results of the insulin test. Of the four patients with recurrences, one had positive results of a postoperative insulin-gastric acid test, and the other three had definitely negative results of postoperative tests.

Results in both portions of this paper are reported as simply satisfactory or unsatisfactory. In comparing the results with those obtained following subtotal gastrectomy, four classifications are utilized. An entirely symptom-free patient is said to have an excellent result. One who has occasional abdominal complaints but no evidence of recurrence nor time lost from work is classified as having a good result. When the outcome of the operation is excellent or good, the result is classified as satisfactory. A patient who has no evidence of recurrence but who has disturbing side-effects of sufficient degree to interfere with work or normal living habits is reported as having a fair result. A person who has a proved or suspected recurrence following operation is classified as having poor results. Those classified as fair or poor are considered to have unsatisfactory results.

There were no surgical deaths. One patient died one year and seven months after surgery of a coronary thrombosis, and one patient died one year and seven months after surgical treatment of recurrent ulceration and perforation. This patient will be discussed more completely in this report. There are 34 (89.5%) patients with results considered to be satisfactory at the end of the first year and 4 patients (10.5%) with results considered to be unsatisfactory. At the end of the second year there are only 29 patients (78.4%) in the satisfactory class and 8 patients (21.6%) in the unsatisfactory class. One patient, who was mentioned above, was dropped from the follow-up because of death due to coronary thrombosis. From the end of the second year to the end of the fifth year, there is no change in the percentage of satisfactory and unsatisfactory results. At the end of five years, therefore, there are 29 (78.4%) patients said to have satisfactory results and 8 (21.6%) patients said to have unsatisfactory results.

When patients who underwent vagotomy alone are considered, the percentage of failures at the end of one year is 16.6%, at the end of two years 36.4%, and at the end of five years 36.4%. Again there is no change in classification at the end of the second and fifth years. At the end of five years 63.6% of the patients are considered to have satisfactory and 36.7% unsatisfactory results.

Twenty-one patients were subjected to the combined operation of vagotomy and gastroenterostomy or pyloroplasty during the one year period from July, 1946, to July, 1947. At the end of the first year 90.5% had satisfactory and 9.5% unsatisfactory results. At the end of five years 85.7% are considered to have satisfactory and 14.3% unsatisfactory results. Again, the five year results are identical with the two year results.

An analysis of the cases in which results were unsatisfactory reveals that those patients subjected to vagotomy alone, in contrast to those subjected to vagotomy with

2. Moore, F. D.: Follow-up of Vagotomy in Duodenal Ulcer, Gastroenterology **11**: 442, 1948.

3. Grimson, K. S., and others: Vagotomy: Clinical Experiences During 4 Years, J. A. M. A. **139**: 508, 1949.

4. Walters, W.; Brownson, B. C., and Phillips, S. K.: Present Status of the Treatment of Peptic Ulcer, J. Michigan M. Soc. **48**: 202, 1949.

5. Stein, I. F., Jr., and Meyer, K. A.: Studies on Vagotomy in the Treatment of Peptic Ulcer: Clinical and Physiological Results 3 to 4 Years After Surgery, Surg., Gynec. & Obst. **93**: 625, 1951.

pyloroplasty or gastroenterostomy, have a higher incidence both of recurrence and of severe side-effects of surgery. Four of the 38 patients had recurrences of their ulcers, all during the first and second years. Two of the recurrences are in the vagotomy alone group, giving an incidence of 18.2%. One of these recurrences occurred during the first year in a 48-year-old white man. Symptoms were typical of peptic ulcer and at first responded readily to medical therapy. Throughout the first year, however, symptoms kept recurring, and early in the second year x-ray examination of the gastrointestinal tract revealed the presence of an active duodenal ulcer with crater formation. Symptoms became progressively severer and unresponsive to medical therapy. On Aug. 18, 1948, a subtotal resection was done. The patient has been free of ulcer symptoms from the time of resection to the time of reexamination three years later. The other recurrence was during the second postoperative year and manifested itself by bleeding plus mild epigastric distress. X-ray examination revealed a small crater in the duodenal bulb, and the hemoglobin level was 8.5 gm. per 100 cc. (determined by photoelectric colorimeter). The patient was treated medically, bleeding stopped, and the patient has been relatively well since but has required constant medical supervision.

One recurrence, in the first postoperative year, occurred in the vagotomy and gastroenterostomy group. This 66-year-old white man had a recurrence of his ulcer symptoms approximately eight months after his operation. The symptoms were relatively mild, and the patient did not wish to have x-ray examination carried out. He was placed on an ulcer regimen, which he failed to follow closely. One and one-half years after surgery he was readmitted to the University Hospital in a state of shock, and he died of a perforated marginal ulcer on Aug. 5, 1948.

There was one other recurrence. This was in a 47-year-old white man who was subjected to a transthoracic vagotomy for a marginal ulcer. At the end of the first year he was classified as having an excellent result. During the second year he had a recurrence of all of his preoperative symptoms, and x-ray examination revealed both a marginal and a duodenal crater. Three and one-half years after surgery, he suffered a cerebrovascular accident, and at five years he has right hemiplegia in addition to his ulcer symptoms.

TABLE 1.—*Summary of Results of Subtotal Gastrectomy as Reported in the Literature*

Author	Year of Study	Follow-Up Period, Yr.	No. of Cases	Satisfactory Results, %	Mortality, %	Recurrence, %
St. John	1939	Average 4.3	55	76.4	18	..
Heuer	1944	2-5	83	81.9	6	..
Rienhoff	1945	2-10	260	78	2	9
Allen and Welch	1946	3-4	129	87	5.1	2.3
Gaviser	1948	5	139	79	5.6	..
Crile	1948	...	44	58	4	..
Hinton	1950	1-10	162	90	3.7	1.8
Moore and others	1950	4-8	155	76.1	2.86	..
Colp and others	1952	5	206	89.3	0	4.9

6. Trimble, I. R., and Lynn, D. H.: The Surgical Treatment of Duodenal, Gastric and Anastomotic Ulcer, Postgrad. Med. **10**: 469, 1951.

In summarizing the five-year results we find that, of the patients undergoing vagotomy alone, 63.6% had satisfactory results, and the incidence of ulcer recurrence is 18.2%. A total of 36.4% were considered to have unsatisfactory results. In those undergoing vagotomy plus pyloroplasty or gastroenterostomy, 85.7% had satisfactory results at the end of five years, 4.7% have had recurrences, and a total of 14.3% are considered to have unsatisfactory results. The failures in the vagotomy alone group, owing to severe side-effects of surgery, included those due to anorexia, bloating, diarrhea, and marked gastric retention as shown by x-ray examination. These patients comprised 18.2% of the 12 patients operated on. Failures in the group having combined surgery, other than those due to recurrence, are classified as such because of severe postcibal distress characterized by episodes of nausea, distention and abdominal distress immediately after eating (dumping syndrome) and followed by episodes of shakiness, sweating, blurring of vision, and often faintness 30 minutes to 2 hours after eating; 9.8% of the patients felt that these symptoms were of such severity that classification as having unsatisfactory results was warranted.

TABLE 2.—*Analysis of Four Operative Deaths in Sixty-Five Patients Subjected to Subtotal Gastrectomy*

Patient	Age, Yr.	Sex	Cause of Death *
B. C.....	61	F	Pulmonary embolism
F. H.....	53	M	Blow-out of duodenal stump
A. R.....	56	M	Hemorrhage from excluded ulcer
A. S.....	61	M	Pancreatitis, peritonitis

* The cause of death was confirmed by autopsy in the first three cases and by a second laparotomy in the fourth case.

RESULTS OF SUBTOTAL GASTRECTOMY

We are in complete agreement with the views expressed by Trimble and Lynn [6] that the best results with subtotal gastrectomy can be obtained only when the resection includes (1) the distal three-fourths or more of the stomach, (2) all of the pyloric antrum or at least the antral mucosa, and (3) the greater part of the lesser curvature. Actual removal of the ulcer appears to be less important, although this matter remains a moot point. Most authors agree that in the reestablishment of gastrointestinal continuity a short-loop retrocolic gastrojejunostomy is preferable to an antecolic connection, and some surgeons prefer the Bilroth 1 type of restoration when it is technically feasible.

Table 1 summarizes several reports from the recent literature concerning the results of treatment of duodenal ulcer by gastric resection. In general, these data are quite constant and demonstrate that subtotal gastrectomy entails an operative mortality of from 3 to 5% in the hands of experienced surgeons, but that from 75 to 90% of patients who survive obtain excellent or entirely satisfactory results. In less than 10% the results are admittedly poor, and recurrent anastomotic ulcer develops in approximately 3 or 4% of the cases.

This latter part of the present report concerns 65 consecutive cases of ulcer treated by the conventional form of subtotal resection during the years 1944, 1945, and 1946. Fifty-two of these patients had duodenal ulcer, and the remaining 13 had anastomotic ulcer that developed following gastroenterostomy for duodenal ulcer. There

were 57 men and eight women in this group, and the average of these patients was 51.5 years. The indications for operation in the 52 cases of duodenal ulcer were as follows: pyloric obstruction in 36, hemorrhage alone or in combination in 9, intractability in 6, and roentgenologic evidence suggestive of a prepyloric neoplasm in 1. Operation was necessary in the 13 patients with jejunal ulcer because of uncontrollable pain, hemorrhage, or both. There were four operative deaths, a mortality of 6.1%. All of these deaths followed resection for duodenal ulcer.

Six patients died of intercurrent disease within five years following operation and hence are not eligible for follow-up evaluation. Two other patients had been traced for only two and three years, respectively, and while the results were satisfactory at the time of the last follow-up note, these cases have also been excluded from the final calculation. There remain 53 patients for final analysis, and the results of treatment are shown in table 3 and 4. Excellent or good results were obtained in 86.8%, while in 13.2% the results were deemed unsatisfactory. Of the two patients listed as having only fair results, one has marked symptoms characteristic of the dumping syndrome and the other experienced a single massive hemorrhage two years after operation. This man has been otherwise symptom-free, and a diagnosis of recurrent ulcer has never been conclusively established. In five cases the results are listed as poor. All of them have definite symptoms of recurrence, and in four patients roentgen examinations have revealed the presence of a recurrent gastrojejunal ulcer. The remaining patient is strongly suspected of having a marginal ulcer, although positive radiological proof is lacking.

TABLE 3.—*Results Five Years Postoperatively of Various Surgical Procedures for Duodenal Ulcer*

Type of Surgery	Poor	Fair	Total Unsatisfactory	Good	Excellent	Total Satisfactory
Vagotomy with or without drainage *	5 (13.5%)	3 (8.1%)	8 (21.6%)	12 (32.4%)	17 (46.0%)	29 patients (78.4%)
Vagotomy alone	2 (18.2%)	2 (18.2%)	4 (36.4%)	1 (9.0%)	6 (54.6%)	7 patients (63.6%)
Vagotomy with gastroenterostomy †	2 (9.5%)	1 (4.8%)	3 (14.3%)	3 (14.3%)	15 (71.5%)	18 patients (85.7%)
Subtotal resection	5 (9.4%)	2 (3.8%)	7 (13.2%)	4 (7.6%)	42 (79.2%)	46 patients (86.8%)

* Includes two cases of marginal rather than duodenal ulcer. † Includes five cases in which vagotomy with pyloroplasty was done.

TABLE 4.—*Incidence of Ulcer Recurrence Following Surgery for Duodenal Ulcer*

Type of Surgery	No. of Patients	No. with Recurrent Ulcer
Vagotomy with or without drainage operation *	37	4 (10.5%)
Vagotomy alone	11	2 (18.2%)
Vagotomy plus gastroenterostomy †	21	1 (4.7%)
Subtotal gastric resection	53	5 (9.4%)

* Includes two cases of marginal rather than duodenal ulcers.
† Includes five cases in which vagotomy with pyloroplasty was done.

COMMENT

It should be emphasized that one feature of this study is the fact that all of the patients were seen in one institution, the University of Michigan Hospital. The indications for surgery were identical in both groups. The internists seeing these patients followed the same policies for medical management. The surgeons followed the same indications for surgery, as well as the same surgical techniques in the cases in which operations were done.

The operation of subtotal gastrectomy had been utilized in this institution as a treatment of choice for many years. The operation of vagotomy and gastroenterostomy was resorted to in similar types of cases receiving subtotal gastrectomy. It is for this reason that we believe our cases are reasonably well controlled. The one criticism is whether our number of cases is large enough to be statistically significant.

Under the heading of good and excellent results, as outlined in the body of the paper, we have included the various postoperative complications. We have not segregated the commonly studied problems such as lack of gain in weight, "dumping" syndrome, nutritional disturbances, protein deficiencies, and anemia, as is sometimes done in detailed analyses. Our results, however, do include an evaluation of what the patient has thought of his progress at the end of five years, which, we feel, is of paramount significance, coupled with mortality figures.

If one compares satisfactory results in subtotal gastrectomy versus vagotomy and gastroenterostomy, we have a figure of 86.8% as contrasted to 85.7%, a completely similar figure for all practical purposes. If one compares the recurrence rate in the two surgical procedures, our figures indicate, after five years, that 9.4% with subtotal gastric resection have had a recurrence, as contrasted with 4.7% of patients with vagotomy plus gastroenterostomy. Finally, if one compares mortality statistics in the two groups, the mortality rate is 6.1% in those patients treated by subtotal gastrectomy versus no mortality in the group treated by vagotomy plus gastroenterostomy.

CONCLUSIONS

In the patients treated in this institution for complications of chronic duodenal ulcer, utilizing the same indications for surgery and employing the operation on similar types of patients, we have a comparable percentage of satisfactory results in persons treated with subtotal resection versus those treated by vagotomy and gastroenterostomy. Our figures show a smaller recurrence rate at the end of five years in patients with vagotomy and gastroenterostomy, as contrasted to the recurrence rate in patients receiving subtotal gastric resection. The mortality rate in our group of 53 persons who were treated by subtotal gastric resection is 6.1% and is 0 for 38 persons treated by vagotomy with or without gastroenterostomy.

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INFECTIOUS FACTORS IN PEDIATRIC AND ADULT ALLERGY

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Allergic therapy, in my opinion, has been greatly hampered by the reluctance of many to acknowledge the theory of infective allergy. Indeed, allergists other than Cooke and his followers still fail to regard foci of infection as specific etiological factors. The practicing physician, however, recognizes the significance of focal infection because he sees the therapeutic results obtained when the chronic foci are removed. It is hoped that more and more physicians will recognize the necessity of the removal of foci in treatment, as they begin to understand the importance of bacterial sensitivity in allergy.

But before one can discuss intelligently the importance of focal infections in allergy, it is first necessary to consider the theoretical basis on which the concept of bacterial hypersensitivity rests. In 1921, Zinsser produced proof that the anaphylactic and tuberculin types of sensitization could exist in the same animal separately or at the same time. Rich [1] believed that bacterial hypersensitivity depends on cellularly bound antibodies that are not found in great quantities in the circulation. Hence, passive transfer tests are negative. Chase,[2] however, has actually shown this type of sensitivity to be cellular, not humoral. A focus of infection is a prerequisite to the occurrence of bacterial hypersensitivity. Rich [1] and his associates have shown that there is no relationship between immunity and allergy. They contend that allergy converts a bacteria that does not produce a toxin into one that does. Rich has also shown that the transference of hypersensitization is not necessary for the transference of immunity in any infection.

The invasion of bacteria sets in motion various types of responses, which, in man, may manifest themselves in such diseases as erysipelas, rheumatic fever, tuberculosis, and syphilis. Rich agrees with Swift in regarding rheumatic fever as a manifestation of allergy to the products of streptococci. He points out the similarity of the lesions in rheumatic fever and those obtained after injections of horse serum in experimental animals. Because bacteria give delayed reactions of the tuberculin type instead of giving an immediate wheal reaction, diagnosis of bacterial allergy has been difficult. Skin tests with bacteria have been valueless, because there seems to be no relationship between a skin reaction and an active infection. The only accurate indication of bacterial allergy that we have in adults is the reproduction of the allergic picture with an injection of autogenous vaccine. The striking improvement after the removal of infected foci, however, especially the tonsils and adenoids in children, must have a relationship other than a coincidental one.

The foci in children are most frequent in the tonsils and adenoids. The organisms usually involved are beta hemolytic streptococci, pneumococci, and hemolytic staphylococci. The hesitancy in removing infected tonsils and adenoids when indicated, even as early as 16 months, is, in my experience, not justified. The reluctance on the part of pediatricians to remove infected foci accomplishes only the continuance of the allergic syndrome.

Fully 50% of the children seen by the physician have had previous tonsillectomies and have recurrences. The diagnosis of tonsillar recurrences is simple, yet the diagnosis of recurrent adenoids too frequently is allowed to depend on palpation, a painful and inaccurate procedure. Lateral soft tissue roentgenograms of the nasopharynx in children will outline adenoid masses very distinctly. In the older child, nasopharyngoscopic examinations may be used. Large masses of adenoid tissue can be treated only by surgical removal. Local applications of radium can be effective only when the tissue is small in quantity and well localized. X-ray is the most satisfactory therapy for the disseminated lymphoid tissue spread over the nasopharynx. With these measures, upper respiratory tract infection in children can usually be brought under control. Needless to say the other inhalant or food sensitivities must be diagnosed and treated. Injections of autogenous vaccine should be included in the treatment. I most frequently use the autogenous vaccine first, to determine the patient's constitutional tolerance to it. If no reaction occurs, stock vaccine may be added.

The diagnosis of sinusitis in the adult requires some comments. Several diagnostic errors are often made. First, nasopharyngoscopic examinations are all too frequently omitted. Second, too much stress is put on transillumination. Hyperplastic sinusitis has many cystic forms. Too frequently this is forgotten when transillumination shows no abnormality. In many patients roentgen examination shows a considerable degree of sinus disease when transillumination does not. When x-ray evidence is not conclusive, opaque contrast media should be used to outline the sinuses. Grove [3] has shown its importance in the diagnosis of sinus disease. Once disease in the sinuses has been established, medical therapy with vaccines should be attempted. If results are not satisfactory, the infected tissue must be removed as completely as possible by surgery. Window resection in the antrum has not proved satisfactory.

SKIN ALLERGIES

The importance of infection has, in my opinion, been insufficiently stressed in the allergies of the skin, particularly in eczema and urticaria. Although the importance of superficial staphylococcic and streptococcic infections on the skin has been recognized, the ability of bacteria or their products, acting as allergens, to cause dermatitic lesions has not received sufficient recognition.

In the adult with eczema, the pathological process in the sinus is hyperplastic in character. Many patients with eczema who have not improved despite dietary changes will be found to have an infected focus in the nasopharynx or sinuses. The early removal of infected foci is followed

Read in the Session on Allergy before the Section on Miscellaneous Topics at the 101st Annual Session of the American Medical Association, June 11, 1952.

1. Rich, A. R.: Significance of Hypersensitivity in Infections, Physiol. Rev. **21**: 70, 1941.
2. Chase, M. W.: The Cellular Transfer of Cutaneous Hypersensitivity to Tuberculin, Proc. Soc. Exper. Biol. & Med. **59**: 134, 1945.
3. Grove, R. C.: Importance of Hyperplastic Sinusitis in Bacterial Allergy, J. Allergy **22**: 550, 1951.

in many cases by marked improvement. The results have justified the theory of bacterial hypersensitivity. Furthermore, the reproduction of the eczematous lesion by an injection of autogenous vaccine made from tissue culture has verified the cause in these cases.

Urticaria is similar to eczema in that it too may be infective in origin. In urticaria, however, foods may be a causative factor. Such patients usually identify the food in question without any difficulty. In other patients a combination of both foods and infection may be causative factors. In children the papular urticarias are most frequently an expression of bacterial allergy and usually improve on removal of the infected foci. In adults, sinusitis, both chronic and acute, frequently causes urticaria. Fink and Gay,[4] working with a group of 170 patients with urticaria and angioneurotic edema, reported 74% cured and 12% improved when focal infection was removed. Drainage or removal of the focus, plus injections of a properly prepared autogenous vaccine, comprised the treatment.

VASOMOTOR RHINITIS

Vasomotor rhinitis of the nonseasonal variety is probably one of the commonest complaints for which the rhinologist is consulted. There are two types of vasomotor rhinitis: the acute and the chronic. The causes may be many and varied, ranging anywhere from endocrine disturbances to real allergic hypersensitivity. One of the commonest causes of acute vasomotor rhinitis is hypersensitivity to inhalants. Hansen-Pruss [5] found that 214, or 74.8%, of 287 patients with allergic rhinitis had a complicating sinusitis with polyps. In 93 patients with perennial rhinitis he found 64.5% had sinusitis and nasal polyps. Woodward and Swineford,[6] in 128 cases, found 50% had sinus involvement.

When sinusitis accompanies vasomotor rhinitis, the pathological process is usually of the hyperplastic, polypoid type. It may involve the ethmoidal and sphenoidal sinuses, and subsequently the antra. In children, tonsils and adenoids are the important foci. Recurrent adenoids should also be suspected. It is important, in my experience, to give these patients adequate allergic therapy when indicated, before surgery is attempted. Treatment should be carried out at regular intervals until symptoms have been controlled. Complete relief, however, may not be obtained by allergic therapy alone, but may require surgery. Subsequent to surgery, whether it be on the tonsils and adenoids or on the sinuses, vaccine therapy should be employed to build up the resistance of the body to infection. Autogenous vaccines are made from tissue cultures, sinus washings, and cultures of the nasopharynx. Drugs, in symptomatic therapy, have been of some help in the allergic group, but in the infective group the results are disappointing. The antibiotics are of help if there is purulent infection present, which is an infrequent occurrence.

ASTHMA

Chobot, Uvitsky, and Dundy [7] showed infection to be the most important single cause of asthma in children. Of 400 patients, 30% had asthma from infection alone. The incidence of sinusitis in asthmatic adults is high. Kern and Schenck [8] reported that 87% of 400 cases gave x-ray evidence of sinusitis. Kelley [9] reported 89% of 100 asthmatic patients having chronic infections in the sinuses. Cooke [10] reported a series of 470 cases. In 45%, sinusitis was the sole cause. The maxillary sinuses were the most frequently involved, and the ethmoids were next.

In the study of the asthmatic patient, a careful, complete, and thorough medical examination is necessary to eliminate other possible causes of dyspnea, such as renal and cardiac dyspnea, tumors of the lungs and bronchi, foreign bodies, tuberculosis, pulmonary fibrosis, and silicosis. Next, the relative importance and extent of the focus of infection as a factor in causing asthma must be determined. This requires considerable judgment. Patients frequently have asthma caused by inhalants and/or food allergens and at the same time show definite sinus disease. An environmental test (with the patient hospitalized) will produce rapid improvement if the causative agent is airborne. If a food allergen is eliminated for the same period, a disappearance of symptoms also results. Those patients not helped by hospitalization or food allergen elimination usually have disease of bacterial origin. In children,[8] a combination of inhalant and bacterial allergy accounted for 87% of the cases of asthma. The history of the asthma becoming more acute with colds is, of course, important, but this may be misleading.

Probably the most important reason for poor therapeutic results is that the allergic factors have not been properly evaluated. No operative procedure can be effective if the other allergic factors have not been adequately studied. Until, however, pediatricians recognize the importance of infection, particularly in the adenoids of these children, a great many failures will occur. I cannot stress too frequently or too strongly the importance of recurrent tonsils and adenoids as foci that cause symptoms. Proper dental diagnosis for any focus in the teeth also assumes real importance in the therapy of asthma.

Gay reports [11] a series of 125 patients with asthma who had been subjected to sinus operations. Infrequent attacks of asthma were reported by 20.8% after surgery and complete relief by 19.2%. Grove [12] reported 69% of 200 cases improved. His results were better in the cases in which infection and allergy to inhalants occurred, rather than in the series in which infection alone was the cause. He emphasized the importance of removal of any associated infections, such as those in tonsils, adenoids, and teeth.

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4. Fink, A. I., and Gay, L. N.: A Critical Review of 170 Cases of Urticaria and Angioneurotic Oedema Followed for a Period of from 2 to 10 Years, Bull. Johns Hopkins Hosp. **55**: 280, 1934.
5. Hansen-Pruss, O. C.: Bacterial Allergy and the Importance of Otolaryngological Procedures, Laryngoscope **59**: 540, 1949.
6. Woodward, F. D., and Swineford, O., Jr.: Allergic Rhinitis: Analysis of 128 Cases in Which Rhinologist and Allergist Collaborated, Arch. Otolaryng. **34**: 1123, 1941.
7. Chobot, R.; Uvitsky, I. H., and Dundy, H.: The Relationship of the Etiologic Factors in Asthma in Infants and Children, J. Allergy **22**: 106, 1951.
8. Kern, R. A., and Schenck, H. P.: Chronic Paranasal Sinus Infection: Relation To Diseases of the Lower Respiratory Tract, Arch. Otolaryng. **18**: 425, 1933.
9. Kelley, S. F.: Incidence of Sinusitis and Nasal Polypi in Bronchial Asthma, Laryngoscope **46**: 692, 1936.
10. Cooke, R. A.: Infective Asthma: Indication of Its Allergic Nature, Am. J. M. Sc. **183**: 309, 1932.
11. Gay, L. N.: Diagnosis and Treatment of Bronchial Asthma, Baltimore, Williams and Wilkins, 1946, p. 282.
12. Grove, R. C., in Cooke: Allergy in Theory and Practice, Philadelphia, W. B. Saunders Company, 1947.

RESULTS OF OPERATION

There is no doubt that a great many asthmatic patients have been operated on for sinus disease with indifferent results. One of the important reasons for this is that patients are operated on by rhinologists without adequate medical and allergic diagnosis. I should also like to state that a few haphazard tests done by a laboratory technician do not qualify as a competent study. The results of this indifferent type of allergic study are seen only too often by the internist when the patient complains about the many operations he has undergone and investigation reveals inhalant sensitizations to be the cause of his trouble. Obviously, surgery is not a cure when the cause of trouble is an inhalant. Subjecting patients to operation when the disease is minimal and is not really the cause of his asthma is the next commonest mistake. Frequently, polypectomy is done with no attempt to remove the infection in the ethmoids or sphenoids. These must be removed as completely as possible, if polyps are not to recur.

The removal of infected tissue prior to the onset of severe asthma, in my opinion, serves to prevent the occurrence of serious trouble and constitutes one of the most important steps in preventive allergy. This is particularly true in children. Patients with chronically infected foci should have them removed as early in their illness as is possible. It is true that there have been a great many patients who have refused surgery because they feared it. These patients, usually in the fifth decade, become sensitized to the bacteria, or their toxins, from these foci. The asthma, which up to this time has been mild, becomes very severe, or, in many cases, the "bronchitis," which has been on an infective basis, turns into severe asthma.

Failure of surgery to give relief to patients may be due to the following causes: First, the patient may have had asthma for too many years, may be too old, or may have marked emphysema and other irreversible changes in his chest. These patients have only a slight chance of marked improvement with surgery and should not be operated on. The patient below 50 years of age, however, with infective asthma of about five years' duration or less, and with no irreversible thoracic changes, is of the type most benefited by this kind of operation. Before surgery, adequate, intelligent therapy with vaccines properly made from tissue cultures should be administered, as well as therapy with any of the inhalants to which the patient happens to be sensitive.

SUMMARY

The significance of focal infection as a cause of allergic symptoms is gradually being recognized as physicians see the therapeutic results obtained when chronic foci are removed. Diagnosis of bacterial allergy is difficult. Skin tests are valueless. The foci in children are usually in the tonsils and/or adenoids. Hesitance in removing them, even in children 16 months old, is not justified in my opinion. Recurrence of both tonsils and adenoids is frequent. Recurrent tonsil diagnosis is simple. Recurrent adenoids can be diagnosed by lateral soft tissue roentgenograms of the nasopharynx. Local radium applications are effective when the tissue is small and localized. Otherwise, surgery usually must be used.

In the adult, sinus and dental infection are the usual allergic causes. Omitting nasopharyngoscopic examinations, placing too much stress on transillumination, and considering roentgenograms to be conclusive are frequent diagnostic errors. Opaque contrast media are important. The infected sinus tissue must be removed as completely as possible, once sinus disease has been established. The removal of chronic foci in eczematous patients is often followed by marked improvement. Urticaria may be caused by foods as well as by focal infection. Many cases of vasomotor rhinitis are improved, if not cured, by removal of infected foci.

In asthmatic children, infection is the most important single cause of the disease. Sinusitis very often accompanies asthma in adults. A careful examination should be made before any surgery is attempted, to ascertain that asthma is being caused by focal infection. Surgery is not recommended in cases in which the patient is over 50 years of age, has had asthma for five or more years, or has marked emphysema and other irreversible changes in the chest. Before surgery, therapy with vaccines should be used.

30 W. 59th St., New York 19.

CLINICAL NOTES

TREATMENT OF OCULAR METHYLROSANILINE POISONING WITH FLUORESCEIN SOLUTION

George Newton Hosford, M.D.
and
Joseph G. Smith, M.D., San Francisco

Accidents to the eyes from aniline pencils are so rare that many ophthalmologists have never seen a case and are unaware of the great danger to vision that such an accident may involve. The first case reported occurred in 1888,[1] and reports are not uncommon for the following 20 years; since that time they are less numerous, perhaps because such pencils are now used less, and some are probably made with less toxic dyes than formerly.

A bit of the "lead" of an aniline pencil in the conjunctival sac or in the tissues of the eye first stains the area around it an intense blue or purple; the longer it remains the more intense the color becomes and the more widely it spreads. Edema and hyperemia are apparent in a matter of minutes, and necrosis about the site of the injury may occur in a matter of hours. Panophthalmia, which required removal of the eye, has occurred in only a few days.

Various remedies have been proposed, but the most popular has been the 4% tannic acid solutions recommended by Vogt,[2] who came to the conclusion that the more alkaline the dye, the more destructive it was. To

Read at the 21st Annual Mid-Winter Postgraduate Clinical Convention, Jan. 22, 1952, Los Angeles.

1. Thompson, P. J.: Acute Conjunctivitis Due to Aniline, Lancet 1: 720, 1888.
2. Vogt, A.: Weitere experimentelle und klinsche Untersungen über den schädlichen Einfluss von künstlichen Anilinfarben auf das Auge. Ztschr. f. Augenh. 13: 117, 1905.

judge from the case reports since the tannic acid treatment was introduced, it has not been effective.[3]

One of us (G. N. H.) saw one case in 1942. A 10-year-old boy, seated in a dentist's chair, leaned over to look down just as the dentist, who was carrying an aniline pencil in his breast pocket, stood erect after picking up an object that had fallen to the floor. The point of the pencil slid over the boy's eyeball and broke off in the conjunctiva of the upper lid. On the advice of a colleague, Dr. George Magee, who had seen the result of one such accident at Barnes Hospital in St. Louis, the most thorough débridement was done within an hour, with the patient under general anesthesia. As much of the stained tissue as possible was cut away, and every visible particle of the pencil point was scraped away and washed out. No chemical neutralization was attempted, because we were not then aware of the possibility, and the wound slowly healed, with no permanent disability.

A second case was seen on Jan. 24, 1951. A 41-year-old woman employee of a San Francisco newspaper felt a foreign body blow into the left eye as she crossed an alley where materials for printing the paper were unloaded. She immediately noticed that the tears were stained purple, and by the time she returned to her own office fellow employees noticed that the skin of her eyelids was rapidly becoming a deep purple. In less than an hour she was seen in our office. The vision in the right eye was normal; the vision in the left eye was 20/40.

The patient had an intense photophobia of the left eye and felt considerable pain; the skin of the eyelids was stained a deep purple for at least 1 in. (2.54 cm.) back from the lid margin in all directions. The conjunctiva was punctured or eroded near the external canthus, and the entire conjunctiva and the subconjunctival tissue in that area were stained the same color. During the course of examination the color spread rapidly under the conjunctiva toward the inner canthus, and, eventually, it also appeared in the aqueous humor in the anterior chamber. The color was unmistakably similar to that produced by a bit of "lead" from an indelible pencil, the coloring matter of which is methylrosaniline chloride (methyl violet). One of us (J. G. S.) had heard of a patient with a similar case who had been successfully treated with fluorescein solution by Dr. Roderic O'Connor,[4] so after such gross particles as were present in the conjunctival sac were removed and the break in the conjunctival tissue curetted, the conjunctival sac was flooded with fluorescein solution, which is ordinarily used in a concentration of 0.5%. The concentration of the two dyes obviously was so disproportionate that, at first, nothing happened. At this time we suspected that possibly the alkali in the solution had more to do with the reaction than the fluorescein, so we secured some 2% fluorescein solution and some 2% bicarbonate solution and used them alternately for the next two hours at intervals of 5 or 10 minutes. One drop of atropine sulfate was instilled. By the time two hours had passed the intense purple color had been reduced approximately one-fourth. A bluish-black precipitate formed with each application of the fluorescein solution, and we continued to wash it out. We felt that if the same treatment were carried on throughout the night there was a reasonable chance of saving the patient from almost certain partial or complete loss of vision in that eye. She was sent to the hospital, and the treatment was continued throughout the night at intervals of one-half hour by the nurses. By morning the methylrosaniline chloride was completely bleached. At 7:45 a. m. there was no sign of the violet dye in the lids, conjunctiva, or anterior chamber. There was moderate edema of the lids. The corneal epithelium had, however, been almost completely lost. The conjunctiva was hyperemic, and there was some chemosis. There was a 2+ aqueous flare and there was a fluorescein-like color in the aqueous humor.

On Jan. 26, 1951, the lid edema was the same. The corneal epithelium was still absent over an area about 4 mm. in diameter in the center of the cornea. The anterior chamber had a slight flare but no discoloration. On Jan. 27, 1951, there was lid edema. The defect in the corneal epithelium was the same as the day before. On Jan. 29, 1951, there was little lid edema. The defect in the corneal epithelium was about half the size it had been the day before.

The patient was seen daily from Jan. 30, 1951, to Feb. 5, 1951, and during this time there were areas of punctate staining on the central portion of the cornea. During the time of observation one drop of 1% atropine sulfate was instilled into the conjunctival sac daily, and the eye was bandaged closed. The patient was last seen on April 11, 1951, at which time the vision of both eyes was 20/20 for distance and Jaeger I for near vision.

COMMENT

The exact cause of the loss of the corneal epithelium is not known, but it is probably due to the toxic effects of the dye before it is precipitated. The eye was anesthetized with 0.5% tetracaine (pontocaine®) hydrochloride solution, and a few drops of 4% cocaine were used in preparation for the curetting of the site of the injury. No local anesthetic was used after this. Pain was controlled by the hypodermic use of morphine, and all manipulations were carried out by persons fully aware of the importance and the fragility of the corneal epithelium.

Our experience in this case confirms the observations of Dr. O'Connor. We feel that because of the many failures reported when such cases were treated with tannic acid and other previously recommended treatments that fluorescein solution should be the method of choice until some better agent is discovered. Lemon juice is recommended by Viktor Much.[5] Citric acid would seem to have no advantage over tannic acid, and when the chemistry of the reaction between methylrosaniline chloride and sodium fluorescein is studied it will be apparent why fluorescein solution is effective.

We had great difficulty in finding a chemist who understood this reaction. The usual explanation advanced was the same as our own assumption that the alkali usually present in fluorescein solution was the important factor. This can easily be shown not to be the case by

3. Duke-Elder, W. S.: Text-book of Ophthalmology, Vol. II: Clinical Methods of Examination, Congenital and Developmental Anomalies, General Pathological and Therapeutic Considerations, Diseases of the Outer Eye, St. Louis, C. V. Mosby Company, 1938, p. 1707.

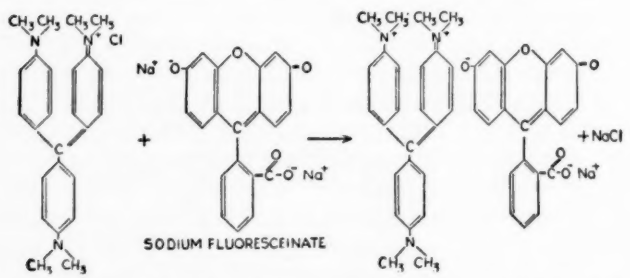
4. O'Connor, R.: Personal communication, 1951.

5. Much, V.: Lemon Juice in Treatment of Indelible Pencil Injuries of the Eye, Ophthalmologica **121**: 43, 1951; abstracted Am. J. Ophth. **34**: 1473, 1951.

rubbing an indelible pencil on a sheet of paper. Application of a sodium bicarbonate solution has no effect; however a 2% fluorescein solution will remove the marks completely in a few minutes.

When the case was discussed with Prof. Troy C. Daniels, dean of the College of Pharmacy, University of California, he recognized the nature of the reaction at once. He stated that the copying leads in violet colored indelible pencils appear to uniformly contain approximately 30% of methylrosaniline chloride together with graphite and a binder such as gum tragacanth. The principal toxic ingredient is, of course, the methylrosaniline chloride, which is a protoplasmic poison. It was reported by Gierlich [6] to destroy the erythrocytes, cause methemoglobin formation, and result in anemia.

The triphenylmethane dyes are compounds of relatively high molecular weight that are highly dissociated as cations (basic). Cations of this type readily combine with anions (acids) to form a salt. Sodium fluoresceinate, which is an acid of relatively high molecular weight, will combine with the methylrosaniline chloride to give a slightly dissociated salt. Since sodium fluoresceinate removes the dye from the tissues it is evident that it is able to effectively compete with the anionic groups in the tissues for the toxic dye, thereby making removal possible.



Chemical reaction of methylrosaniline pararosaniline hydrochloride with sodium fluoresceinate.

There are many anionic substances that might be used for this purpose, but since fluorescein apparently does the job relatively well and it is normally available to ophthalmologists, it is probably the best agent to recommend (see figure).

We intend to try a few other substances on rabbit eyes that Professor Daniels suggested might be even more effective and report the results if they prove to be more satisfactory than those obtained with fluorescein solution.

6. Gierlich, J.: Experimentelle Untersuchungen über Tintenstiftvergiftungen, Deutsche Ztschr. f. d. ges gerichtl. Med. **25**: 165, 1935.

Close Venereal Disease Treatment Center.—After 206 years as a center for the treatment of venereal disease, the London Lock Hospital is to close on October 31. Thus ends a famous descendant of the lazar-houses of the Middle Ages, which were diverted from the care of leprosy to that of syphilis when the latter disease swept Europe at the end of the 15th century . . . The records of the hospital from 1746 to 1952 are complete, and they cover, as nothing else could, the history of the treatment of venereal disease in England during that time. On no account must they be lost, and we hope they will be placed in the safe keeping of, say, one of the Royal Colleges, the Royal Society of Medicine, or the Medical Society of London.—Annotations, The Lock, *The Lancet*, Oct. 4, 1952.

JAUNDICE DUE TO METHYLTESTOSTERONE THERAPY

John C. Wood, M.D., Philadelphia

Methyltestosterone has been implicated as a cause of hepatogenous jaundice. The histological abnormality produced in the liver by this drug is said to be distinctive. It consists of bile plugging of the intercellular canaliculi unaccompanied by notable inflammatory reaction or necrosis. Furthermore, the laboratory findings are of aid in the differentiation of methyltestosterone-induced icterus from other causes with which it may be confused clinically. The following report illustrates the characteristic features of jaundice caused by methyltestosterone therapy.

REPORT OF A CASE

M. L., aged 32, was admitted to the Hospital of the University of Pennsylvania on Oct. 11, 1950, with complaints of abdominal cramps and anorexia of two weeks' duration. During the week prior to admission he had one episode of vomiting. Subsequently he noted dark urine, light but not acholic stools, and generalized pruritus. His physician observed icterus on Oct. 10, 1950. The patient had received no parenteral medication; there had been no recognized contact with jaundiced persons. There had been no exposure to a questionable water supply or other source of fecal contamination. There was no history of rodent contact.

The patient had been followed in the endocrine clinic since 1937, when he had been given a diagnosis of idiopathic hypofunction of the anterior pituitary. This opinion was based on the findings of delayed bone maturation and a deficiency of function and development of the target glands, including the testes, thyroid, and adrenals. Associated abnormalities included increased insulin sensitivity and a low urinary gonadotropin titer. In the two years before admission, replacement therapy had been limited to intermittent administration of methyltestosterone. He had taken 20 mg. daily with regularity for the two months preceding his hospitalization.

Examination revealed a deeply icteric patient of short stature, appearing much younger than 32 years, with female body contour and fat distribution. His blood pressure was 96/65; his pulse rate was 78. Hair was sparse in the axillary and pubic regions. He had moderate gynecomastia. The testes were pea sized. Cherry red nevi were scatterd on the skin, but no spider angiomas were present. His nose, on which plastic surgery had been performed, was small and beak shaped. He wore partial dentures; peridontal infection involved the remaining teeth. The liver was not palpated, nor was there significant tenderness over the hepatic area.

Laboratory Data.—A complete blood cell count on admission was within normal limits and remained so except for a fall in hemoglobin from an initial value of 99% to 74% on Nov. 6. The platelet count was 112,000, bleeding time 1.5 minutes, and coagulation time 10 minutes. The urine was normal except for the presence of a few white blood cells, hyaline and finely granular casts, and persistent bilirubinuria. Kolmer and Kline reactions were negative. Fasting blood sugar and blood urea nitrogen determinations remained normal throughout. The serum amylase value on Oct. 23 was 46 units. Serum cholinesterase on Oct. 30 was 0.62 Michel units. Serum chloride and sodium were 86 and 126 mEq. per liter, respectively, on Oct. 16, but subsequently returned to normal; serum potassium was 4.9 mEq. per liter at this time and subsequently fell to 4.2 mEq. per liter. These figures may have reflected deficient adrenal cortical function, unreplaced loss from emesis being an additional consideration in the low serum chloride and sodium levels. Endocrine assay of the urine revealed 8 mouse units of gonadotropins in 24 hours (normal adult male, greater than 8 and less than 48 mouse units), 2.4 mg. of total neutral 17-ketosteroids in 24 hours (normal adult

From the Medical Clinic, Hospital of the University of Pennsylvania.

male 8 to 25 mg), and 13 mouse units of estrogens in 24 hours (normal adult male, greater than 8 and less than 26 mouse units).

There was a fall in eosinophils per cubic milliliter from 88 to 44 four hours after the administration of 0.5 cc. of 1:1,000 epinephrine. The results of an electrophoretic study of serum proteins were abnormal in the prominence of the gamma$_1$ fraction, the gamma$_2$ fraction being low normal. The pattern differed from that of viral hepatitis in which the gamma$_2$ fraction is elevated.

A flat roentgenogram of the abdomen revealed no opaque calculi or other abnormalities. Results of serial hepatic function tests are recorded in the accompanying table.

Biopsy Report.—A needle biopsy of the liver (see the accompanying figure) performed on Oct. 18 was interpreted by Dr. H. T. Enterline of the Surgical Pathology Department as showing plugging of the intercellular bile canaliculi with bile pigment as the only finding of note. There was no evidence of an inflammatory infiltrate, bile duct proliferation, or parenchymal cell necrosis or recent regeneration. The slide was reviewed by Dr. F. M. Hanger, who felt that the histological picture was the same as that found by the Columbia University group in their cases of jaundice related to methyltestosterone intake.[1]

Results of Serial Liver Function Tests *

Date	Proteins †	T. F.‡	T. T.§	C. C. F.‖	Gamma Globulin ¶	Cholesterol **	Alkaline Phosphatase **	Bilirubin ††	Prothrombin Time ‡‡
10/12/50	6.9 A: 4.1 G: 2.8	0	1.2	0	0.9	225 E-65	7.8	T¹-12.2 T -21.0	66%
10/16/50	.....	..	...	..	...	...	...	.....	84%
10/19/50	7.0 A: 4.1 G: 2.6	0	0.8	1+	0.8	164 E-84	10.4	T¹-18.6 T -34.8	....
10/23/50	6.1 A: 4.1 G: 2.0	0	0.9	0	0.9	131 E-29	6.5	.....	....
10/26/50	5.9 A: 3.8 G: 2.1	0	1.3	1+	1.3	...	6.1	T¹-11.0 T -22.2	....
10/30/50	.....	0	0.8	0	1.5	115 E-51	5.4	T¹- 6.2 T -14.0	....
11/ 2/50	6.2 A: 3.8 G: 2.4	0	1.6	1+	1.6	...	6.8	T¹- 7.0 T -12.6	67%
11/ 6/50	.....	0	1.5	0	1.1	176 E-102	5.4	T¹- 5.6 T -12.4	....
11/ 9/50	.....	..	...	..	...	...	...	T¹- 4.4 T - 8.8	....
1/ 9/51	.....	..	...	..	...	...	...	T¹- 0.54 T - 1.2	....

* Results of the tests showed marked and protracted hyperbilirubinemia without commensurate elevation of the serum alkaline phosphatase. The cholesterol esters were depressed; the values for serum protein fractions, thymol turbidity, thymol flocculation and cephalin cholesterol flocculation showed little or no derangement. These findings are typical of jaundice due to methyltestosterone therapy.

† Total serum protein (gm. per 100 cc.). A = albumin (normal, 3.5 to 4.7 gm. per 100 cc.). G = globulin (normal, 2.1 to 4.3 gm. per 100 cc.).

‡ Thymol flocculation (normal, 0 to ±).

§ Thymol turbidity, pH 7.55 (normal 0.5 to 2.5 MacLagen units).

‖ Cephalin cholesterol flocculation, 24 and 48 hours (normal 0 to ±).

¶ Gamma globulin, turbidity (normal 0 to 4.8 Kunkel units).

** Total serum cholesterol (normal 117 to 333 mg. per 100 cc.). E = esterified fraction (normal 60% to 75% of total).

†† Serum alkaline phosphatase (normal 2.2 to 8.5 Shinowara units).

‡‡ Serum bilirubin (mg. per 100 cc.). T¹ = direct (one minute; normal 0 to 0.21 mg. per 100 cc.). T = total (normal 0.2 to 1.08 mg. per 100 cc.).

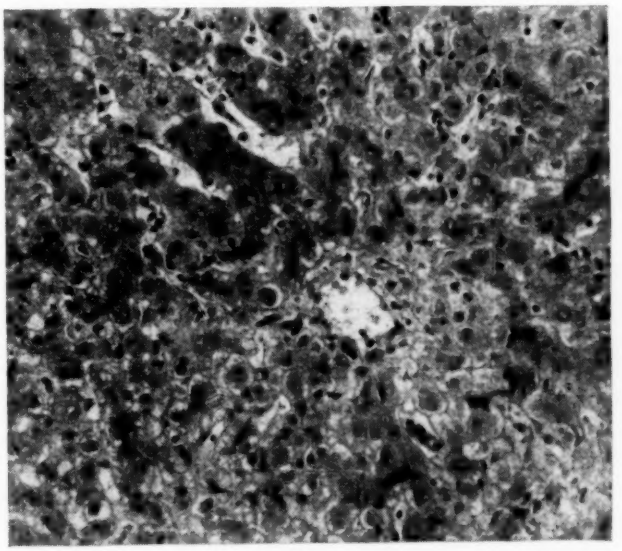
‡‡ Prothrombin time (percentage of standard; normal range 70% to 100%).

After admission methyltestosterone administration was stopped. The initial part of the hospital course was characterized by marked anorexia, nausea, and emesis. A fetid breath odor, not unlike that of amigen, developed. Parenteral and Levine tube alimentation were required until Nov. 1. It was difficult to assess the role played by the patient's psychic immaturity in the intensity and duration of the above symptoms. Adrenal insufficiency may have been partly responsible for the excessive vomiting. Symptomatically he improved abruptly during the first few days of November; he was discharged for further convalescence at home on Nov. 11. The jaundice cleared slowly and was still clinically apparent at this time. His weight dropped from 152 to 145 lb. (68.9 to 65.8 kg.) during the hospital stay.

Shortly after discharge his family physician reported a transient recurrence of abdominal discomfort, nausea, and emesis, with apparent intensification of icterus. At the time of his first clinic follow-up, Dec. 1, his total serum bilirubin was 3.6 mg. per 100 cc. When seen on Jan. 9, 1951, he was feeling well and the total serum bilirubin had fallen to 1.2 mg. per 100 cc. He was well when last seen, on Sept. 28. Parenteral administration of testosterone (nonmethylated) and administration of thyroid substance and cortisone, in varying amounts and combinations, has been prescribed since the time of his discharge.

COMMENT

Methyltestosterone was introduced into clinical use in 1939.[2] Since then it has gained widespread use in the multifaceted sphere of androgen therapy because of the advantages of oral administration. Not until 1947 was attention called to it in print as a probable cause of jaundice.[3] In 1948, Kinsell [4] noted an apparent relationship between methyltestosterone therapy and icterus. In 1950 support was given to earlier suspicions in a report from the Columbia University Presbyterian Medical Center of a unique and homogeneous collection of seven cases of jaundice in which methyltestosterone was convincingly implicated as the causative agent. Since then I have seen no further published confirmation. However, a number of similar cases have been observed at various clinics,[5] suggesting that the incidence of jaundice associated with its use is considerably higher than the dearth of reports in the literature would imply.



Needle biopsy of the liver was performed approximately three weeks after the onset of illness. The cell structure is intact. There is an absence of inflammatory cell infiltration. The dark areas represent bile pigment plugging of the intercellular bile canaliculi, the only abnormal finding. (A blue filter was employed to bring out the bile pigment, altering somewhat the appearance of the standard hematoxylin and eosin preparation.)

The pathogenesis of jaundice due to methyltestosterone therapy remains obscure. Whether it is related in some way to the known urinary wasting of creatine as-

1. Werner, S. C.; Hanger, F. M., and Kritzler, R.: Jaundice During Methyl Testosterone Therapy, Am. J. Med. **8**: 325 (March) 1950.

2. Foss, G. L.: Oral Application of Methyl Testosterone and Its Simplification of Androgen Therapy, Brit. M. J. **2**: 11 (July) 1939.

3. Werner, S. C.: Clinical Syndromes Associated with Gonadal Failure in Men, Am. J. Med **3**: 52 (July) 1947.

4. Kinsell, L. W.: Factors Affecting Protein Balance in the Presence of Chronic Viral Liver Damage, Gastroenterology **11**: 672 (Nov.) 1948.

5. Neefe, J. R.: Personal communication to the author. Thorn, G. W., and others: Medical Progress: Clinical Usefulness of ACTH and Cortisone, New England J. Med. **242**: 865 (June 1) 1950.

sociated with its use,[6] and thus to defective transmethylation, or whether it results from other type of injury eventuating in a disturbance of normal bile hydration, as previously postulated,[1] is a matter of conjecture at this time. Free testosterone and testosterone propionate, neither of which has been reported to cause jaundice, do not have the same creatinosuric effect. However, creatinuria does follow the administration of other methylated steroids as shown by Wilkins and Fleischmann.[7] From their work, they concluded that methyltestosterone ingestion results in an increased synthesis of creatine whereas the use of testosterone propionate does not produce such an effect. Furthermore, 17-methylsteroids are not metabolized in the same manner as free testosterone or the propionate as shown by the fact that their administration does not result in an increased urine output of 17-ketosteroids.[8] Thus an intermediate metabolic product of methyltestosterone, rather than methyltestosterone per se, may be responsible for the icterogenic effect as well as for the creatinuria.

SUMMARY

The patient described herein demonstrated all the features characteristic of what appears to be the entity of hepatopathy due to methyltestosterone therapy: nontender liver, protracted hyperbilirubinemia without commensurate rise in the serum alkaline phosphatase, a fall in the esterified serum cholesterol, absence of notable change in the serum proteins or results of liver flocculation tests, a histological picture characterized by bile pigment plugging of the intercellular canaliculi with an absence of cellular necrosis, and recovery when treatment with the drug is stopped. In this case there was a significant fall in the total cholesterol as well as in the esterified fraction and a tendency to hypoprothrombinemia not reported by Werner and co-workers.[1] However, this does not detract from the striking over-all similarity to other cases of jaundice due to methyltestosterone therapy.

Treatment consists of cessation of methyltestosterone therapy. "Hepatic supportive measures" and bed rest are probably indicated. It is implied that one should look for a history of methyltestosterone ingestion when confronted with a jaundiced patient.

ADDENDUM

Since the writing of this paper, Brick and Kyle [9] have reported three additional cases of hepatogenous jaundice following methyltestosterone therapy.

36th and Spruce St.

6. Wilkins, L.; Fleischmann, W., and Howard, J. E.: Creatinuria Induced by Methyl Testosterone in Treatment of Dwarfed Boys and Girls, Bull. Johns Hopkins Hosp. **69**: 493 (Dec.) 1941. Samuels, L. T.; Henschel, A. F., and Keys, A.: Influence of Methyl Testosterone on Muscular Work and Creatine Metabolism in Normal Young Men, J. Clin. Endocrinol. **2**: 649 (Nov.) 1942. Werner, S. C., and West, R.: Nitrogen Retention, Creatinuria, and Other Effects of the Treatment of Simmonds' Disease with Methyl Testosterone, J. Clin. Investigation **22**: 335 (May) 1943. Tager, B. H.: Creatine Metabolism and Methyl Testosterone, J. Clin. Endocrinol. **3**: 185 (March) 1943.

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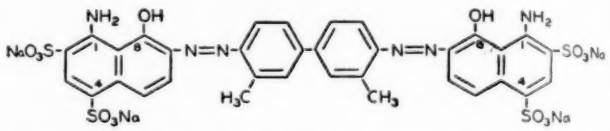
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

R. T. STORMONT, M.D., *Secretary.*

Evans Blue.—Tetrasodium salt of 4,4′-bis[7-(1-amino-8-hydroxy-2,4-disulfo)naphthylazo]-3,3′-bitolyl.—$C_{34}H_{24}N_6Na_4O_{14}S_4$.—M.W. 960.83.—The structural formula of Evans blue may be represented as follows:



Actions and Uses.—Evans blue is a diazo dye that, when injected into the blood stream, combines firmly with plasma albumin and leaves the circulation very slowly. Its optical density is directly proportional to its concentration, and the maximum spectral absorption of the dye in plasma occurs where absorption of hemoglobin is so negligible that slight hemolysis does not invalidate the reading.

Evans blue is useful as an intravenous diagnostic agent for the colorimetric determination of blood volume by the plasma-dye-hematocrit method. Although the technique of the test is difficult, it gives good results when properly performed. The normal value for blood volume varies with body weight and hematocrit and cannot be stated specifically. The value for men tends to be higher than for women.

Determination of blood volume is important in the detection of impending shock. It is also important as a guide to the amount of blood, plasma, or other fluids needed to avoid inadequate or excessive dosage in conditions accompanied by decreased blood volume. Such requirements are also estimated for the preoperative and postoperative management of chronically ill or debilitated patients. The use of the dye by other routes of administration or for other purposes is still in the experimental stage.

Mixing of the dye with the blood in normal persons is usually complete 9 minutes after intravenous injection; however, in patients with congestive heart disease or in severe shock, the mixing time may be prolonged to 15 minutes. The dilution of the dye in blood withdrawn serves as a quantitative indication of the volume of total circulating plasma when compared colorimetrically with the plasma of the patient before injection.

The exact final disposition of the dye in the body is not known. It is removed from the vascular system chiefly by diffusion via the capillaries into the extravascular tissues. Small amounts are excreted in the bile and also are taken up by wandering phagocytic cells. Apparently, it is not excreted in the feces and does not pass into the cerebrospinal fluid or through the placenta, and is not known to appear in the urine of patients with undamaged kidneys. No acute or chronic toxic effects have been reported following clinical use of doses required for determination of blood volume. With doses several times greater than necessary, blue staining of the skin and sclerae occurs. Studies in animals indicate that the chief danger from high doses is the production of pulmonary emboli or lesions of the lungs. Such effects have not been observed in human beings.

Dosage.—Evans blue is administered intravenously with the patient in the fasting state (to avoid lipemia) and under approximate basal conditions, including recumbency for at least 15 minutes prior to the test. The dosage consists of a single injection, into the antecubital vein, of 25 mg. of dye as 5 cc. of an

0.5% aqueous solution which has been further diluted with 1 to 2 cc. of isotonic sodium chloride solution. Before the dye is administered, about 10 cc. of blood is withdrawn. The tourniquet must be released promptly to avoid venous stasis which results in inaccuracy of the hematocrit value. The dye is then injected cautiously to avoid extravasation and local staining of the perivascular tissues. The syringe should be rinsed with blood several times to insure complete administration of the dye. Exactly 10 minutes after beginning the injection (15 minutes in acute shock or cardiac decompensation) a second 10 cc. sample of blood is withdrawn from the antecubital vein of the opposite arm, again with care to avoid undue stasis. Each sample is placed immediately on withdrawal into several 4 cc. hematocrit tubes containing 1 mg. of dried heparin sodium per tube to prevent coagulation. When gross hemolysis or lipemia of the plasma cannot be avoided, an extraction method should be employed. Other tests desired may be performed on the undyed sample. The hematocrit tubes are centrifuged at 3,000 rpm with a radius of 15 cm. to determine the hematocrit. Samples of the dye-tinged and dye-free plasma are then separated from the tubes for comparison with a properly calibrated photometer. With any one manufacturer's lot of dye it is necessary to calculate the optical density of a 1:500 dilution of the dye in normal dye-free plasma when a 1 cm. cuvette is used for readings (otherwise the dilution is in proportion to the size used). The volumes of the blood components are calculated in accordance with the following formulas:

1. Total plasma vol. = [ml. of dye solution injected (5.0 ml.) × dilution of standard (500) × optical density of a standard] ÷ [optical density of dye-tinged plasma (unknown)]
2. Total blood vol. = $\frac{\text{Total plasma vol.}}{1-(0.96 \times \text{hematocrit})}$
3. Red cell vol. = Total blood vol. − Total plasma vol.

Normal values are estimated on the basis of normal body weight (in kg.) of the patient when healthy. Experiments on men of average build indicate normal values as follows:

1. Plasma vol. in cc. = Wt. in kg. × 45
2. Blood vol. in cc. = Wt. in kg. × 85
3. Red cell vol. in cc. = Wt. in kg. × 40

Values for women are usually somewhat lower.

Tests and Standards.—

Physical Properties: Evans blue is a bluish green or brown iridescent powder. It is very soluble in water; very slightly soluble in alcohol; and practically insoluble in benzene, carbon tetrachloride, and ether. The pH of a 0.5% solution is 5.5-7.5.

Identity Tests: Conduct a sodium fusion on about 0.1 gm. of Evans blue and dissolve the product in 10 ml. of water. To 1 ml. of the solution, add 2 drops of sodium nitroprusside T.S.: a red-violet color appears *(presence of sulfur)*. To 2 ml. of the solution, add a crystal of ferrous sulfate and 1 ml. of 10% sodium hydroxide T.S., heat the mixture to boiling, filter it, and acidify the filtrate with diluted hydrochloric acid, and finally add a drop of ferric chloride T.S.: a blue color appears *(presence of nitrogen)*.

A 0.00035% solution of Evans blue, prepared as directed in the spectrophotometric assay, exhibits a maximum at about 612 mμ [specific absorbancy, E(1%, 1 cm.), about 1046].

Purity Tests: Dissolve about 1 gm. of Evans blue, accurately weighed, in 100 ml. of water. Filter through a tared sintered glass crucible of fine porosity and wash until the dye color disappears from the crucible. Dry at 105° to constant weight (about 1 hour): the amount of residue does not exceed 0.05%.

Dissolve 25 mg. of Evans blue in 5 ml. of water. To 2 ml. of this solution, add 2 ml. of nitric acid and heat to boiling. Add 9 ml. of water to 1 ml. of the boiled solution and then add a few drops of silver nitrate T.S.: no turbidity occurs *(absence of halide)*. To 2 ml. of the dye solution, add 2 ml. of sulfuric acid and 2 ml. of alcohol, and heat to boiling: no odor of acetic acid or ethyl acetate is noticeable *(absence of acetate)*.

Accurately weigh 2 gm. of Evans blue in a crucible, add 2 ml. of sulfuric acid, mix by swirling, and heat the mixture to dryness on a hot plate. Heat over a gas burner until the charred mass no longer adheres to the crucible. Cool, add 2 ml. of hydrochloric acid, and transfer the mass quantitatively to a beaker with the aid of about 50 ml. of water. Disintegrate the char, allow it to be extracted with the acidified water, and filter through a wetted filter paper into a 100 ml. volumetric flask. Wash the beaker and filter paper with enough water to make 100 ml. of solution. Evaporate 50 ml. of the solution to dryness on a water bath. (Save the remaining solution for the test for iron.) Dissolve the residue in 10 ml. of water, add 2 ml. of 1 *N* acetic acid and water to make 25 ml., and run a *U.S.P. heavy metals test:* the amount of heavy metals does not exceed 70 ppm.

Add 1 ml. of 0.1 *N* potassium thiocyanate to 5 ml. of the solution prepared in the test for heavy metals: no red color is produced *(absence of iron)*.

Dry about 0.25 gm. of Evans blue, accurately weighed, in an Abderhalden-pistol dryer over phosphorus pentoxide and under vacuum at 75° (carbon tetrachloride) to constant weight (about 9 hours): the loss in weight does not exceed 15.0%.

Assay: (Evans Blue) Prepare a 0.00035% solution of Evans blue as follows: transfer to a 1,000 ml. volumetric flask an amount of dye, accurately weighed, equivalent to about 0.35 gm. on an anhydrous basis. Add about 700 ml. of water and shake the flask until the dye dissolves (about 15 min.). Fill to the mark with water and mix. Pipet 10 ml. of the solution into a second 1,000 ml. volumetric flask, fill to the mark with water, and mix. Spectrophotometrically determine the absorbancy of the solution in a 1 cm. cell at 612 mμ, using water as a blank. The concentration of the final solution in mg./ml. = absorbancy ÷ 104.6. The amount of Evans blue on an anhydrous basis is not less than 95.0 nor more than 105.0%.

Dosage Forms of Evans Blue

SOLUTION. *Identity Tests:* Evans blue solution exhibits a maximum absorption at about 612 mμ.

Assay: (Evans Blue) Pipet into a 250 ml. volumetric flask an amount of solution equivalent to about 45 mg. of Evans blue on an anhydrous basis, fill to the mark with water, and mix. Pipet 20 ml. of this solution into a 1,000 ml. volumetric flask, fill to the mark with water, and mix. Proceed as directed in the spectrophotometric assay for Evans blue in the monograph for Evans Blue. The amount of Evans blue is not less than 90.0 nor more than 110.0% of the labeled amount on an anhydrous basis.

Wm. R. Warner, Division of Warner-Hudnut, Inc., New York.

Solution Evans Blue: 5 cc. ampuls. An aqueous solution containing 5 mg. of Evans blue in each cubic centimeter. Packaged with 5 cc. ampuls of normal saline solution.

Basic Aluminum Carbonate.—Basaljel (Wyeth).—An aluminum hydroxide-carbonate complex, available only as an aqueous suspension containing the equivalent of 4.9 to 5.3% of aluminum oxide (Al_2O_3.—F.W. 101.94) and not less than 2.4% of carbon dioxide (CO_2.—F.W. 44.01). Basic aluminum carbonate suspension is prepared by the interaction of aluminum salts and carbonates.

Actions and Uses.—Like aluminum hydroxide, but unlike aluminum phosphate, basic aluminum carbonate combines with the phosphate ion in the intestinal tract to form insoluble aluminum phosphate which is excreted as such in the stool. This diminishes the amount of phosphate available for intestinal resorption, which lowers the serum inorganic phosphorus and favors more complete tubular resorption by the kidney, thus reducing the urinary excretion of phosphate. Basic aluminum carbonate is approximately one-third more effective than aluminum hydroxide in phosphorus-binding power; this is partly attributed to its greater aluminum content. Therefore, basic aluminum carbonate is primarily useful, in conjunction with a low phosphorus diet, to reduce the concentration and precipitation of urinary phosphate in patients susceptible to the formation of phosphatic calculi of the urinary tract. It may thus be used as an adjunct in the prevention or management of phosphatic stone formation in the kidneys, ureters, and bladder. Limitation of phosphorus intake and diversion of phosphate through the intestine by means of basic aluminum carbonate is proposed to replace the use of urine acidifiers and the acid-ash diet for control of the urinary precipitation of phosphate when the latter method is ineffectual because of the presence of ammonia-forming bacterial infection or could lead to acidosis resulting from impairment of renal function.

Basic aluminum carbonate shares the antacid properties of other aluminum compounds used to control gastric hyperacidity and as an adjunct in the treatment of peptic ulcer. Its acid-consuming capacity is greater than that of the upper allowable range of an equivalent weight of aluminum hydroxide.

Basic aluminum carbonate is not contraindicated in the presence of kidney damage or in the presence of an alkaline urine caused by persistent infection. It shares the tendency to produce constipation secondary to the mild astringent action that is characteristic of similar aluminum preparations, but usually this can be easily controlled by the concomitant administration of a mild laxative.

Dosage.—Basic aluminum carbonate is administered orally. In the management of phosphatic urinary calculi, the dosage should be regulated according to the urinary phosphorus excretion of the patient. The average initial adult dose is 30 cc. four times daily, preferably taken after meals and at bedtime. In the majority of patients, this will reduce urinary phosphate excretion within a few days to 0.2 gm. or less per 24 hours. The urinary phosphate should be determined at least once a month, and the patient should be placed on a diet designed to provide a daily mineral intake of 1.3 gm. of phosphorus, 0.7 gm. of calcium, and 13 gm. of nitrogen, and to furnish about 2,500 calories. Such a diet can be followed for an indefinite period by the average ambulant patient. The average adult antacid dose is 4 to 8 cc., repeated as necessary to control gastric hyperacidity.

Tests and Standards.—

Dosage Forms of Basic Aluminum Carbonate

SUSPENSION. *Physical Properties:* Basic aluminum carbonate suspension is a white, creamy, thixotropic gel which may separate to some extent on standing. On exposure to atmospheric pressure, the preparation gradually loses carbon dioxide; it must be kept in tightly closed containers. The pH of basic aluminum carbonate suspension is between 6.6 and 7.0.

Identity Tests: Basic aluminum carbonate suspension reponds to the tests for aluminum (*U. S. P. XIV*, p. 719).

Mix 10 ml. of basic aluminum carbonate suspension with 10 ml. of diluted hydrochloric acid. A colorless, odorless gas is evolved. Bubble some of the gas into freshly filtered 0.1 *N* barium hydroxide: a white precipitate forms *(presence of carbonate).*

Purity Tests: Test basic aluminum carbonate suspension for chloride, sulfate, arsenic and heavy metals as directed in the monograph for aluminum hydroxide gel in *U. S. P. XIV*, p. 29. The limits for these impurities are those given in *U. S. P., loc. cit.*

Assay: (Acid-Consuming Capacity) Transfer about 1 ml. of basic aluminum carbonate suspension to a tared 125 ml. glass-stoppered flask, and weigh. Proceed as directed in the assay for acid-consuming capacity in the monograph for aluminum hydroxide gel, *U. S. P. XIV*, p. 29. The volume of 0.1 *N* acid consumed is not less than 28 ml./gm. of the suspension as received.

(Aluminum Oxide) To about 4 gm. of basic aluminum carbonate suspension, accurately weighed, add 10 ml. of hydrochloric acid and 100 ml. of water. Heat to boiling, filter if necessary, and wash well with hot water. To the combined filtrate and washings, add water to make about 175 ml. and proceed as directed in the assay for aluminum oxide under Aluminum Acetate Solution, *U. S. P. XIV*, p. 28, starting with, "Add a few drops of methyl red T.S. . . ." The amount of aluminum oxide formed is not less than 4.9 nor more than 5.3% by weight of the basic aluminum carbonate suspension as received.

(Carbon Dioxide) Accurately weigh about 15 gm. of basic aluminum carbonate suspension into a Schroedter alkalimeter (*Kimble Catalog of Laboratory Glassware*, 1947 ed., cat. no. 11010) or equivalent apparatus of comparable accuracy. Charge the alkalimeter with 10 ml. of diluted hydrochloric acid in the reaction reserve chamber, with 5 ml. of sulfuric acid in the absorption chamber, and accurately weigh the alkalimeter and contents. Add the hydrochloric acid to the suspension and allow the reaction to continue at room temperature with occasional agitation until the spontaneous evolution of carbon dioxide stops. Heat to boiling and boil gently for about 3 minutes. Cool and weigh the alkalimeter. The loss in weight of the loaded alkalimeter is due to carbon dioxide. The amount of carbon dioxide evolved is not less than 2.4% by weight of the basic aluminum carbonate suspension as received.

Wyeth, Inc., Philadelphia.

Suspension Basaljel: 360 cc. bottles. A flavored aqueous suspension containing the equivalent of 4.9 to 5.3% of aluminum oxide and not less than 2.4% of carbon dioxide.

Chloramphenicol-U.S.P. (See New and Nonofficial Remedies 1952, p. 118).

Parke, Davis & Company, Detroit.

Ophthalmic Solution Chloromycetin (Dried): 25 mg. vial. A powder containing 25 mg. of chloramphenicol and borate buffer equivalent to 100 mg. of boric acid in each vial. To be diluted with distilled water.

Thiamine Hydrochloride-U.S.P. (See New and Nonofficial Remedies 1952, p. 466).

Nion Corporation, Los Angeles.

Tablets Thiamine Hydrochloride: 10 mg.

COUNCIL ON FOODS AND NUTRITION

ACCEPTED FOODS

The following products have been accepted as conforming to the rules of the Council. JAMES R. WILSON, M.D., *Secretary.*

Louis Milani Foods, Inc., Maywood, Calif.

Diafood Brand Low Sodium Beef Soup Base.

Ingredients: Dextrose, vegetable shortening, beef extract, corn starch, glutamic acid, potassium carbonate, carrot powder, caramel powder, and celery extract.

Analysis (submitted by manufacturer) (Based on 6 oz. serving containing 5.2 gm. dry base).—Protein 0.85 gm. (0.5%), fat 0.85 gm. (0.5%), carbohydrate 3.2 gm. (1.9%), sodium 12.8 mg. (7.0 mg. per 100 gm.).

Calories.—25 per 6 oz. serving.

Use.—For introducing variety into the diets of patients who must restrict their intake of sodium.

Diafood Brand Low Sodium Chicken Soup Base.

Ingredients: Government inspected chickens, dehydrated, dextrose, dextrine, vegetable shortening, glutamic acid, potassium carbonate, turmeric, and celery extract.

Analysis (submitted by manufacturer) (Based on 6 oz serving containing 5.2 gm. dry base).—Protein 0.56 gm. (0.33%), fat 1.0 gm. (0.61%), carbohydrate 3.2 gm. (1.9%), sodium 1.45 mg. (0.85 mg. per 100 gm.).

Calories.—26 per 6 oz. serving.

Use.—For introducing variety into the diets of patients who must restrict their intake of sodium.

Diafood Brand Low Sodium Jellied Consommé (Powdered).

Ingredients: Gelatine, glutamic acid, potassium carbonate, dextrose, caramel powder, and celery extract.

Analysis (submitted by manufacturer) (Based on 4 oz. serving containing 2.8 gm. dry base).—Protein 2.1 gm. (1.7%), fat trace, carbohydrate 0.14 gm. (0.11%), sodium 0.92 mg. (0.81 mg. per 100 gm.).

Calories.—10.6 per 4 oz. serving.

Use.—For introducing variety into the diets of patients who must restrict their intake of sodium.

Diafood Brand Low Sodium Powdered Consommé.

Ingredients: Glutamic acid, potassium carbonate, dextrose, caramel powder and celery extract.

Analysis (submitted by manufacturer) (Based on 6 oz. serving containing 2.7 gm. dry base).—Protein 0.48 gm. (0.28%), fat trace, carbohydrate 0.29 gm. (0.17%), sodium 0.6 mg. (0.35 mg. per 100 gm.).

Calories.—3.3 per 6 oz. serving.

Use.—For introducing variety into the diets of patients who must restrict their intake of sodium.

Chicago Dietetic Supply House, Inc., Chicago.

Cellu Brand Unsalted Boned Chicken

Ingredients: Raw flesh of chicken, with lesser amounts of cooked flesh and skin of chicken.

Analysis (submitted by distributor).—Total solids 29.77%, moisture 70.23%, ash 0.77%, fat (ether extract) 8.48%, reducing substances 0, undetermined substance 0.20%, protein (N X 6.25) 20.32%, sodium (as Na) 0.03%.

Calories.—1.6 per gram; 42.5 per ounce.

Use.—For those who must restrict their intake of sodium.

Newcombe Mead Company, Inc., Los Angeles, California

Capri Brand Evaporated Goat Milk.

Ingredients: This product consists only of evaporated goat milk.

Analysis (submitted by manufacturer).—Total solids 25.16%, moisture 74.84%, ash 1.80%, fat 7.12%, protein (N × 6.38) 6.33%, lactose 9.11%.

Minerals	*Mg. per 100 Gm.*
Calcium	252
Phosphorus	215
Iron	0 26

Use.—As a replacement for cow's milk in special diets.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

APPARATUS ACCEPTED

The following additional products have been accepted as conforming to the rules of the Council on Physical Medicine and Rehabilitation of the American Medical Association for inclusion in Apparatus Accepted. A copy of the rules on which the Council bases its action will be sent on application.

RALPH E. DE FOREST, M.D., *Secretary.*

Respirair Portable Plastic Respirator

Fabrikators Inc. of Massachusetts, 19 Walnut St., Boston 32.

The Respirair Portable Plastic Respirator is a device of the cuirass type for giving artificial respiration by the application of alternating positive and negative pressure to the patient's chest. Like other devices of this type, it consists of an electrically driven pump and a shell that must be fitted airtight over the front of the patient's thorax.

The apparatus is shipped in two crates. One contains the chest pieces; it measures 47 by 59 by 52 cm. (18½ by 23¼ by 20¾ in.) and weighs 30 kg. (66 lb.). The other contains the electrically driven pump; it measures 66 by 59 by 63 cm. (26 by 22½ by 25 in.) and weighs 60 kg. (133 lb.). Unpacked, the "power plant" weighs 40 kg. (90 lb.) and measures 59 by 42 by 47 cm. (23 by 16½ by 19 in.). The motor requires either a 60-cycle alternating current at 110 to 115 volts or a direct current at 24 volts. It draws 315 watts. The respiratory frequency can be varied from 14 to 30 cycles per minute.

Respirair Portable Plastic Respirator

Evidence from acceptable sources showed that this device satisfied the Council's published requirements for respirators of the cuirass type (*J. A. M. A.* **135:**715 [Nov. 15] 1947). The Respirair Portable Plastic Respirator, however, has a limited use in applying artificial respiration in emergencies. The device is not accepted for emergency artificial respiration by lifesaving crews, such as police and fire department crews. Its usefulness in respiratory paralysis due to acute poliomyelitis, according to the evidence reviewed by the Council, is confined to the transporting of the patient from a remote place to a center where a respirator of the tank type is available. The Respirair Portable Plastic Respirator does not take the place of a respirator of the tank type. The appliance does not adequately equip a medical organization or clinic for sustained artificial respiration to all patients with acute respiratory failure. In chronic cases of paralysis of the muscles of respiration, the device is recommended for "weaning" the patient from his dependency on prolonged artificial respiration. The Respirair Portable Plastic Respirator is also useful for temporary artificial respiration while nursing care and physical therapy are being administered to a patient who is otherwise confined to a respirator of the tank type.

Ambco Hearing Amplifier (Table Model)

A. M. Brooks Company, 1222 W. Washington Blvd., Los Angeles 7.

The Ambco Hearing Amplifier (Table Model) is a semiportable hearing aid that is not worn by the patient but is set on a table or desk. It is built for hard use, for instance, by children in school. It is large enough to use batteries which give economical operation yet small enough to be set on a blackboard tray. It measures 76 by 114 by 120 mm. (3 by 4½ by 4¾ in.) excluding the carrying handle, but including the gain control switch. With the batteries it weighs 1,243 gm. (44 oz.). The receiver and cord weigh 120 gm. (4 oz.). It requires both A (1.5 volts) and B (45 volts) batteries.

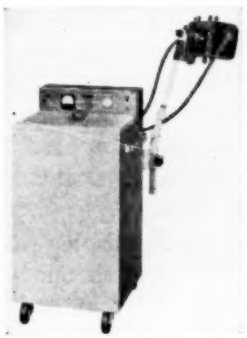
Ambco Hearing Amplifier (Table Model)

The Ambco Hearing Amplifier (Table Model) was inspected and tried out in a laboratory and was reported to perform as represented by the manufacturer.

General Electric Inductotherm, Model F, Type 1

General Electric Co., X-Ray Department, 4855 West Electric Ave., Milwaukee 14.

The General Electric Inductotherm, Model F, Type 1, is a crystal-controlled generator of electromagnetic radiation of a wave length approximating 22 meters. It operates on 25, 50 or 60-cycle alternating current at 115 volts and draws 1,000 watts. It is equipped with casters, stands 102 cm. in height (40 in.), measures 46 by 51 cm. (18 by 20 in.), and weighs 89 kg. (196 lb.).



General Electric Inductotherm, Model F, Type 1

Packed for shipment it measures 127 by 76 by 76 cm. (50 by 30 by 30 in.) and weighs 148 kg. (325 lb.). The shipping weight includes the supporting arm, line cable, and grounding conductor. The contour electrode is not included in the shipping weight. There are provisions for three types of electrodes: contour, cable, or air-spaced. It has Federal Communications Commission Type Approval No. D-543. Evidence from sources acceptable to the Council indicated that this apparatus was of sound construction and performed as represented by the manufacturer.

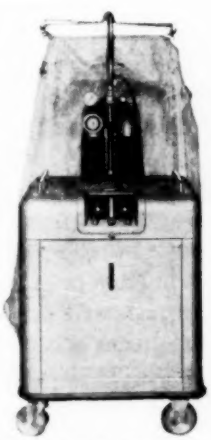
Electrolor Oxygen Tent, Model 570

McKesson Appliance Company, 2226 Ashland Ave., Toledo 10, Ohio.

The Electrolor Oxygen Tent, Model 570, is an electrically refrigerated apparatus for the prolonged administration of oxygen to patients in bed. It consists of a canopy of transparent plastic material with metal supports for suspending it over the bed and a cabinet housing the refrigerating and circulating mechanisms. The cabinet has casters so that it can be moved about easily on the floor.

The height of the cabinet above the floor is 89 cm. (35 in.); other dimensions are 65 and 50 cm. (25½ and 19½ in.). The refrigerating and circulating mechanism is actuated by a ⅓ horsepower motor requiring 60-cycle alternating current at 110 volts.

Evidence of satisfactory construction and performance was obtained by the Council.



Electrolor Oxygen Tent, Model 570

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MEDICAL EXAMINATIONS FOR ATHLETES

Recent issues of THE JOURNAL contain articles on hazards associated with boxing.[1] These reports have received wide publicity in the lay press, which seems to indicate grave concern over the prevention of severe and disabling injuries in sports. There are more than a few critics who contend that some aspects of sports are becoming less competitive and more commercialized, which suggests a suspicion of domination by other than sports fans. Perhaps the publicity given to injuries and bribes has been sufficient to give rise to such a sour viewpoint, but it should not be the grounds for a general indictment of athletic competitions. If there are faults, medical or otherwise, they should be exposed and corrective measures adopted. They should not, however, be used to cause a nation to lose interest in sports, physical competition, and maintaining physical fitness.

Boxing, baseball, basketball, fencing, tennis, log-rolling, wrestling, football, and rifle and pistol shooting—name what you will—have an important part in the life of any healthy and free country. Unfortunately, there are hazards particularly likely to occur in some competitive activities. Professional boxing is in this group. Amateur boxing has been comparatively free of difficulties because of wise precautions taken by those responsible for such events. Professional boxers, however, are in need of more medical help than is now being generally provided. At a recent meeting of physicians interested in boxing held in New York City under the sponsorship of the State Athletic Commission, it was suggested that physicians, at least in that state, should have sufficient authority to protect injured boxers from greedy, ignorant, or unscrupulous handlers. The chairman of the medical advisory board of the State Commission, Dr. Marvin A. Stevens, suggested that closer medical supervision would help prevent serious injury, even death. Dr. Vincent A. Nardiello, physician at Madison Square Garden, reported that since 1946, during or soon after a total of 2 million professional and amateur bouts, 87 boxers throughout the world are known to have died. Forty of the deaths occurred outside of the United States.

Apparently, most boxing deaths are due to aggravation of previous injuries, a fact that supports the need for close medical supervision including thorough examinations. At this conference Dr. Frank R. Ferlaino, first chairman of the N. Y. State Athletic Commission's medical advisory board urged the establishment of uniform national medical standards to protect boxers and pleaded for the free exchange of medical information on sports, research in the field, the development of medical criteria for stopping bouts, and the use of safer gloves, mats, and mouthpieces. A commissioner of the Pennsylvania Athletic Commission directed attention to a recurring problem that arises when a boxer is turned down as physically unfit in one state but is permitted to fight in another state. This indicates effectively the urgent need for uniform medical regulations and criteria on a nationwide basis.

Sports columnists and announcers occasionally quote the manager of a boxer losing a fight as saying his man was not feeling well when he went into the ring. Obviously if his difficulty was due to anything other than nervousness he should not have been permitted to enter the boxing ring. Some fighters say they have "butterflies" in their stomachs just before they leave their dressing rooms, but this is not like the situation recently reported in the public press in which a boxer was allowed to fight in spite of the fact that he had been unable to retain meals for days before a match. A recent article criticizing professional boxing in a lay periodical referred to boxing as legalized murder with blood the payoff. The author called for the elimination of this type of physical competition and alleged it is a vicious racket and "a brutal monopoly." He also mentioned several persons said to be mobsters who were influential in professional fighting.

While the question of society's acceptance of professional boxing remains for society to decide, as long as this activity remains in our midst everyone concerned with it should do what he can to protect the participants from serious or permanent physical injury and death. The medical profession has an important role to play in achieving this objective. As Dr. Ferlaino has pointed out, safety in professional boxing is an important legal and moral obligation of the various state boxing commissions, the promoters, managers, and physicians at the ringside. It is the opinion of many physicians that the high incidence of deaths and injuries that occur in the boxing ring is due to the slipshod and cursory medical examinations hastily conducted before bouts and the failure to perform thorough medical check-ups after bouts. Unfortunately, there has never been a coordinated medical plan to institute medical safety measures in an effort to reduce the number of fatalities and to lower the incidence of several accidents and disabling injuries.

The foreign medical literature contains many articles on the medical aspects of boxing and other sports, but the American literature offers only a very few medical studies in the boxing field. The matter of safeguarding the health and welfare of athletes and especially of boxers has not received the necessary study and attention because of objections raised by some of those with financial interests in boxers. They are reported to have attempted to discourage physicians from reporting their many medical observations.

1. Busse, E. W., and Silverman, A. J.: Electroencephalographic Changes in Professional Boxers, J. A. M. A. **149**: 1522 (Aug. 23) 1952. Ferlaino, F. R.: Medical Program for the Boxing Industry, J. A. M. A. **150**: 651 (Oct. 18) 1952.

The five deaths in professional boxers that occurred in New York State in the past three years were all due to cerebral hemorrhage. One boxer in addition had a multiple fracture of the skull. One autopsy showed a rupture of a pial vessel. It has been firmly established that head trauma, cerebral damage, and cerebral hemorrhage are the most frequent causes of death in professional boxers. The boxing gloves that deal out the lethal blows need to be definitely improved so that a greater measure of protection is offered to the boxer's brain, skull, and mandible. It is reported that some boxing authorities have refused to support any such change because of the fear that there would be a decreased incidence of knockouts, which they think are essential for the sport to retain its popularity. The other common boxing injuries are laceration of the supraorbital ridge and zygomatic area, ocular trauma, injuries to metacarpal bones, sprained thumbs, fractured mandibles, and fractured or dislodged teeth.

The most important of the latent and long-term injuries is the so-called "punch drunk" state, which is due to petechial hemorrhages as reported in 1928 in THE JOURNAL by Dr. Harrison S. Martland. To detect the early cases, New York State, Illinois, and Colorado have instituted careful neurological supervision and the use of the electroencephalographic studies routinely in cases in which there has been severe head trauma or a knockout with an associated period of unconsciousness.

The New York State Boxing Medical Advisory Board has succeeded in providing for a completely equipped medical examining office. Each boxer is required to have an annual roentgenogram of the chest, blood Wassermann test, and urinalysis without cost to him. It also requires an individual unit record system for each boxer and has provided accident report forms so that the type and frequency of accidents may be studied. It also has recommended and instituted research studies to improve the presently used boxing gloves, dental guard, the mat, and the manner of taping hands and wrists.

Other state legislatures have failed to enact laws to set up similar medical advisory groups even though there is a need for such medical supervision in all the states. Several other states—Illinois and Pennsylvania—have made definite medical advances, but no medical advisory boards have been created. Reform and improvement in the medical aspects of boxing, as well as medical supervision of these athletes before and after bouts, cannot be achieved by the efforts made in one or two states. The National Boxing Association has thus far failed to interest the boxing commissions in other states in a health maintenance and safety program along the broad lines being carried out in New York State at the present time.

In an editorial in a journal devoted to industrial medicine and occupational surgery, professional boxing has been labeled "the nation's most dangerous trade." This designation is well deserved in view of the fact that contestants are not screened carefully for latent preexisting medical ailments. During a three month period when thorough medical examinations were first instituted in New York State, early in 1950, when about 300 boxers were examined, one medical examiner personally observed that there were brought to light many cases of positive Wassermann tests, cardiac disease, hypertension, inguinal hernia, chronic nephritis, diabetes, and other latent medical, traumatic, and neurological conditions. Several abnormal electrocardiographs and electroencephalograms were also detected in this short period of time. These observations are definite evidence that more thorough physical, laboratory, and neurological examinations are necessary for accurate diagnosis and supervision of all professional athletes and professional boxers in particular.

Fatalities and accidents can and should be reduced to a minimum. Boxing can be and must be made a better and safer sport. A nationwide effort is essential on the part of not only all physicians but also all authorities, commissioners, and legislators. By more careful, thorough, and scientific medical supervision before and after bouts accidents can be prevented and fatalities reduced to a minimum. To achieve this, the fullest cooperation of all connected with boxing is essential. The physician alone, without this cooperation, cannot achieve any degree of success in making boxing a safer sport. Research should be carried out to improve the gloves so that injuries to the hands will not occur and so that head blows and the chin knockout blow will not cause frequent cerebral hemorrhage. Research and study of improved methods of taping of the hands and provisions for an improved dental or mouth guard are of great importance. There is no doubt that a nationwide medical alertness on the part of officials and physicians will bring about beneficial results in a reduced incidence of accidents and fatalities among boxers.

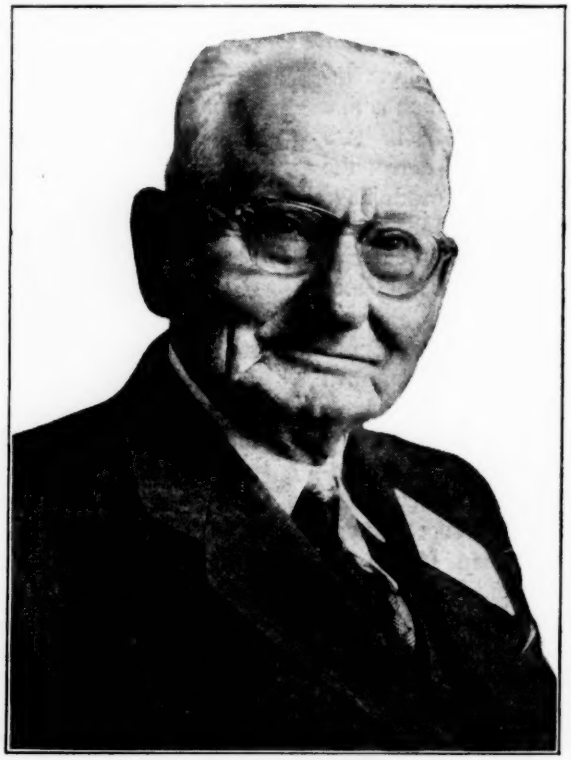
Football authorities years ago established a fatality and accident study committee that has made a genuine effort to analyze the causes of death in football. This committee has already effected a 50% reduction in the fatality rate. In boxing there is no effort being made officially to record the annual death rate, to conduct precise analytical studies of the causes of death in the ring, and to institute remedies to improve the protective equipment. This disinterest and neglect requires serious consideration, and the National Boxing Association should immediately establish a similar continuous medical study through an accident and fatality committee.

Professional boxing as an occupation and as a means to a livelihood for many young athletes has nothing to lose and much to gain by following the advice of the consultant physicians. These physicians have hesitated to make recommendations and conduct research studies because the boxing authorities have not shown sufficient interest in a medical and safety program, perhaps because they assume that any scientific disclosures will hurt boxing. Such an assumption is erroneous. The physicians have in mind only the protection of the boxer when an injury occurs and a desire to institute protective medical measures to reduce the high mortality rate that has made boxing a very hazardous occupation and sport. Research will not harm boxers or boxing; on the contrary, the sooner reliable scientific information is gathered on the medical problems of boxing the better it will be for all concerned.

THE ANNUAL GENERAL PRACTITIONER'S AWARD

At the Clinical Session of the American Medical Association in Denver, Dec. 2, the Board of Trustees announced that Dr. John M. Travis of Jacksonville, Texas, had been selected to receive the sixth annual General Practitioner's Gold Medal. The selection of "the general practitioner of the year" was made by the Board of Trustees from a list of candidates who previously had been awarded similar state honors on nominations submitted by county medical societies.

Dr. Travis, now 75 years of age, has been practicing medicine in Jacksonville for nearly 40 years; previously he was in practice in Martin's Mill, Texas. He graduated from North Texas Normal College, taught school for a time, then studied medicine at the University of Kentucky in Louisville and later at the Southwestern University Medical College in Dallas, Texas, now Southern Methodist University Medical Department, from which he was graduated in 1907. He has done postgraduate work and studied at Tulane University School of Medicine in New Orleans, the New Orleans Polyclinic, the Polyclinic in New York City, Harvard Medical School in Boston, and Washington University Medical School in St. Louis. He is a member of the Cherokee County Medical Society, the Texas Medical Association, the Southern Medical Association, the American Medical Association, the World Medical Association, and yet he has found time to serve his community as a member of the Jacksonville Town Council and, almost continuously since 1925, as director of the Jacksonville Chamber of Commerce, of which he was president for two years. He is a charter member and past president of the Jacksonville Rotary Club and an enthusiastic member of the East Texas Cattle Raisers Association, having a farm well stocked with cattle. The East Texas Chamber of Commerce in April, 1940, selected him as "the man of the month" for his long-time promotion of public sanitation and health throughout the State. Dr. Travis has been especially interested in rural health. In 1919 he, with three other physicians, established the Cherokee Sanitarium, which a few years later was converted into a hospital and named as a memorial to his mother. The Nan Travis Hospital today has 140 beds, and further expansion of its facilities has been planned. To further provide medical care in rural communities, Dr. Travis has been active in a program that would permit medical graduates to serve as interns in small-town hospitals. He was one of the organizers and charter members of the American Academy of General Practice. His colleagues have selected John Maston Travis for the General Practitioner's Award as typifying thousands of family physicians throughout the country who dedicate their lives to the practice of medicine.



JOHN M. TRAVIS, M.D.

POSTGRADUATE CONTINUATION COURSES FOR PHYSICIANS

The semiannual listing of postgraduate continuation courses for physicians, covering the period Jan. 1 to July 15, 1953, appears elsewhere in this issue. These data, prepared as a regular service by the Council on Medical Education and Hospitals, list 792 courses varying in length from a few days to several months. Some are concentrated full-time courses and others are part time. There are opportunities for the physician in general practice as well as for the specialist. In addition, a series of courses for military personnel at medical installations are included. Opportunities for this form of study during the period cited may be obtained in 32 states, the District of Columbia, and Puerto Rico. The subjects embrace 46 major areas in the field of clinical medicine and the basic sciences.

Medical schools, state medical societies, hospitals, state and city boards of health, graduate schools of medicine, special medical societies, and state chapters of the American Academy of General Practice continue to be active in presenting this type of postgraduate education. One hundred and thirteen agencies are participating in sponsoring the courses in this listing, including 49 medical schools, 10 hospitals, 4 graduate schools of medicine, 27 special societies, 5 chapters of the American Academy of General Practice, 11 state medical societies, 1 health department, 3 government agencies, and 3 schools of public health. Institutions offering this type of training are invited to announce such courses in the Council's semiannual listing.

The Council is currently engaged in a field study of postgraduate courses. It is hoped that all sections of the country will be visited by the summer of 1953, following which a comprehensive report on postgraduate medical education will be prepared.

MEDICAL NEWS

CALIFORNIA

Herzstein Medical Lectures.—These lectures were recently delivered at Stanford University School of Medicine, San Francisco, by Dr. William Barry Wood Jr., Busch professor of medicine, Washington University School of Medicine, St. Louis, whose theme, "Cellular Immunology of Acute Bacterial Infections," included "Pathogenesis of Bacterial Pneumonia," "Surface Phagocytosis," and "Cytodynamics of Bacteremia."

Dr. Ada Hatcher Honored.—Dr. Ada L. Hatcher was unanimously chosen Inglewood's outstanding citizen for 1952. At the Armistice Day dinner, sponsored by the local American Legion post, she was presented with the Civic award for her contributions to civic betterment. Dr. Hatcher serves in the Southwest Community Health Clinic and was instrumental in establishing the Inglewood Branch of the American Cancer Society.

COLORADO

Society News.—The Colorado Radiological Society has elected Dr. Wendell P. Stampfli, Denver, president; Dr. Thomas K. Mahan, Grand Junction, vice-president; Dr. William S. Curtis, Denver, secretary; and Dr. Vernon L. Bolton, Colorado Springs, treasurer.

University News.—The University of Colorado School of Medicine, Denver, has added to its staff Dr. John H. Freed, associate professor of radiology, who was formerly a member of the faculty of the University of Pennsylvania School of Medicine, Philadelphia, and Dr. Charles A. MacGregor, assistant professor of surgery, who has been instructor in surgery at Harvard Medical School, Boston.

Personal.—Dr. James S. Miles, instructor in surgery at the University of Chicago School of Medicine, has been appointed instructor in orthopedic surgery in the department of surgery, University of Colorado School of Medicine, Denver.——One of the four Lord & Taylor awards of $1,000 each was recently presented to Dr. Alfred H. Washburn of Denver, director of the Child Research Council at the University of Colorado, for his studies of human growth and development.——Dr. Allan Hurst, former director of the National Jewish Hospital in Denver, has been named medical director of the Ex-Patients Tuberculosis Home, Denver.

Encephalitis Studies in Greeley.—The Encephalitis Investigations Unit of the U. S. Public Health Service recently was transferred from Kansas City to Greeley, which for three years has been the headquarters for field work on encephalitis during the summer. Early in 1953 a section of the Communicable Disease Center's virus laboratory, from Montgomery, Ala., will be established in the same building. The two units will cooperate in encephalitis studies. For nearly four years the epidemiology and laboratory branches of CDC have collaborated in a joint study of encephalitis in the midwest. During this time the Encephalitis Investigations Unit has recovered the virus from baby birds in their nests under natural conditions in nonepidemic years, thus providing an answer to the question of where the virus exists when no human or horse cases of the disease can be found. The virus has been recovered 14 times from pigeons, sparrows, magpies, cliff swallows, redwing blackbirds, and crows. Among the personnel of the Encephalitis Investigations Unit are: Dr. T. Aidan Cockburn, chief, who in November, 1949, joined the staff of CDC as a consultant in epidemiology; Dr. John Winn, who will be in charge of the laboratory unit; Clarence A. Sooter, Ph.D., ornithologist; John Mason, D.V.M.; Elwin L. Bennington, Ph.D., parasitologist; Dr. Julius Amer, epidemiologist; and Mr. Jack Blackmore, entomologist.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

DISTRICT OF COLUMBIA

Society Election.—The Medical Society of the District of Columbia has installed Dr. Wallace M. Yater as president and elected Dr. Herbert P. Ramsey, president-elect; Dr. Maurice A. Selinger, first vice-president; and Dr. Cecile L. Fusfeld, second vice-president. Mr. Theodore Wiprud is secretary-treasurer.

Essay Contest in Psychiatry.—The Washington Psychiatric Society is sponsoring an essay contest for physicians in psychiatric residency training in the Washington metropolitan area. First prize will be a cash award of $100 for the best paper submitted. Winners of the awards will be invited to present their papers before the society. Papers must not exceed 6,000 words, may be on any subject in psychiatry or a closely related field, and must be submitted by Feb. 1, 1953. Information may be obtained from Dr. Seymour J. Rosenberg, secretary of the society, 3730 Cumberland St. N.W., Washington 16, D. C.

Positions Available in Institute for Mental Defectives.—The United States Employment Service for the District of Columbia advises that the following positions are open in a public institution for mental defectives in the Washington, D. C., area:

1. Superintendent, who must be a psychiatrist and an administrator. Salary, $9,600 to a maximum of $10,600. House, completely furnished, is included.

2. Assistant superintendent, open to psychiatrist or one eligible for the psychiatric boards; however, any other physician with ability in personnel and public relations will be considered. Salary, $8,360 to a maximum of $9,360. Furnished apartment at $25 per month provided and commissary privileges.

3. Staff physician. Salary, $7,040 to a maximum of $8,040. Furnished apartment at $25 per month provided and commissary privileges.

The institution has a capacity of 750 persons and an authorized staff of 251. The annual budget is approximately 1 million dollars. Physicians who are interested in applying for these positions should send their qualifications to Mr. K. N. Fox, Manager, U. S. Employment Service for the District of Columbia, 315 12th St. N.W., Washington 25, D. C.

Personal.—Dr. Samuel M. Dodek, Washington, D. C., was invited to present his exhibit on "Tocographic Studies on the Parturient Human Uterus by an Original Method" before the Congress of International Surgeons in Madrid, Spain, recently. This exhibit received an award from the American Congress on Obstetrics and Gynecology at its meeting in New York in 1950.——Dr. Roger M. Choisser, professor of pathology, George Washington University School of Medicine, Washington, D. C., was recently named the University Medical Society's outstanding physician of the year. He is a member of the editorial board of *Medical Annals of the District of Columbia,* chief of the section on pathology of the District Medical Society, and treasurer of the Washington Academy of Medicine.——Dr. Donald H. Stubbs has been elected president of medical service of the District of Columbia.——Dr. John B. Ross, associate director of the Blood Grouping Laboratory, 1835 Eye St. N.W., Washington, D. C., has moved to Jacksonville, Fla., where he will be medical director of the Jacksonville Blood Bank.——Dr. Roland B. Scott, head of the department of pediatrics, Howard University School of Medicine, Washington, D. C., recently returned from a tour of pediatric teaching centers in London, Newcastle-upon-Tyne, Birmingham, Manchester, Edinburgh, Stockholm, and Paris. In London Dr. Scott gave a lecture for postgraduate students at the Great Ormond Street Hospital for Sick Children on "Management of Bronchial Asthma in Childhood."—Dr. Winfred Overholser, superintendent of Saint Elizabeth's Hospital, Washington, D. C., recently delivered the Isaac Ray lectures on psychiatry and the law at Harvard University, Boston and Cambridge, Mass.

FLORIDA

Joint Meeting with Naval Officers.—The Monroe County Medical Society and the Navy medical officers on duty in the Key West area held a joint meeting at the U. S. Naval Hospital in Key West Nov. 20. The meeting was addressed by Dr. Claire L. Straith of Detroit on "Treatment of Facial Injuries and Deformities" and by Dr. Robert B. Kennedy of Detroit on "Recent Advances in Obstetrical Practices."

Seminar in Ophthalmology and Otolaryngology.—The seventh annual University of Florida midwinter seminar in ophthalmology and otolaryngology will be held at Miami Beach, Jan. 12-17, 1953. Lecturers on ophthalmology (Jan. 12-14) will include Drs. Isaac S. Tassman, Philadelphia, Brittain F. Payne, New York, Charles E. Iliff, Baltimore, Lawrence T. Post, St. Louis, and Walter S. Atkinson, Watertown, N. Y. Lecturers on otolaryngology (Jan. 15-17) will include Drs. Samuel Salinger, Chicago, Albert C. Furstenberg, Ann Arbor, Mich., Frank D. Lathrop, Boston, Victor Goodhill, Los Angeles, and Theodore E. Walsh, St. Louis.

ILLINOIS

Communicable Disease Fatalities.—According to the state department of public health, nine major communicable diseases caused the deaths of 2,710 Illinois residents during the first six months of 1952. The same nine diseases were responsible for 2,724 deaths during the first half of 1951. Pneumonia, the leading cause of death among the communicable diseases, caused 1,377 fatalities in the six month period; tuberculosis in all forms, 909; and pulmonary tuberculosis, 823. Syphilis killed 261 persons; influenza, 80; meningitis, 50; measles, 20; poliomyelitis, 7; whooping cough, 5; and diphtheria, 1.

Chicago

Dedicate Laboratories. — Two new laboratories were recently dedicated at the University of Chicago. The facilities, which cost more than $46,000, will be used to study early means for diagnosing cancer of the digestive tract and the cause and treatment of ulcerative colitis. A plaque honoring Mr. Leo Wallach, who made possible the construction of these laboratories, was presented during the dedicatory ceremonies.

Dr. Olson Goes to Texas.—Dr. Stanley W. Olson, dean of the University of Illinois College of Medicine, has accepted appointment as dean of Baylor University College of Medicine, Houston, Texas, and will assume his new duties Jan. 1, 1953. Dr. Olson was assistant director of the Mayo Foundation from 1947 to 1950, when he accepted the Illinois deanship. At Houston he will replace Dr. Walter H. Moursund Sr., who has been named dean emeritus and director of endowments.

Tuberculosis Facilities to Be Checked.—Mayor Martin Kennelly has appointed an 11 man advisory committee to inquire into the needs for more tuberculosis treatment facilities. The committee will study possible use of other city and county facilities to expand treatment offered at the Municipal Tuberculosis Sanitarium, will look into the advisability of asking the state of Illinois to set up a state sanitarium in Chicago, and will coordinate Chicago and Cook County tuberculosis programs. Physicians serving on this committee include Drs. James H. Hutton, Willard Van Hazel, and Ernest E. Irons.

Medical Education for National Defense.—All first year students at the University of Illinois College of Medicine, Chicago, are participating in a pilot program of medical education for national defense. This long-range program is designed to be "an acceptable substitute" for the Reserve Officers Training Program in medical schools. The University of Illinois has been allocated $15,000 by federal agencies to underwrite the costs of the program during this academic year. Similar pilot programs are being conducted at the University of Buffalo; Vanderbilt University, Nashville, Tenn.; Cornell University Medical College, New York; and the University of California Medical School, San Francisco. First year students at the Illinois college are enrolled in a course in "Emergency Surgery" by Dr. John Van Prohaska. Clinical sessions in anatomy, biological chemistry, and physiology also are integrated into the program. Dr. George V. Byfield, clinical assistant professor of medicine, is serving as coordinator of the University of Illinois' pilot program. Serving in an advisory capacity are Dr. Mark H. Lepper, associate professor in charge of preventive medicine, and Dr. William V. Whitehorn, associate professor of physiology.

KANSAS

Cardiovascular Research.—The Endowment Association of the University of Kansas has received a bequest of $100,000 from the estate of the late Henry J. Haskell, editor of the *Kansas City Star*, who throughout his life gave money for cardiovascular research to the Kansas University Medical Center. This bequest will also be used for cardiovascular research.

Personal.—Dr. Charles H. Lerrigo, Topeka, for many years executive secretary of the Kansas State Tuberculosis and Health Association, and for several years executive secretary emeritus, was the honor guest at a luncheon during the annual meeting of the association. Letters written by friends of Dr. Lerrigo were presented to him in a bound volume, which also included souvenirs of his service to the cause of tuberculosis control.

KENTUCKY

State Medical Election.—At the annual convention in Louisville, the Kentucky State Medical Association installed Dr. R. Haynes Barr of Owensboro as president and chose Dr. J. Duffy Hancock, Louisville, president-elect, and Drs. Charles B. Johnson, Russell, William O. Johnson, Louisville, and Guthrie Y. Graves, Bowling Green, vice-presidents.

Hospital News.—A testimonial dinner was held at William Booth Memorial Hospital, Covington, in honor of Drs. Joseph D. and Edgar W. Northcutt, who have been on the hospital staff since its opening in 1914; Dr. Nelson A. Jett, who has been a member of the staff since 1924; and Dr. John H. Caldwell, who has been affiliated since 1930. These physicians are being transferred to Booth's honorary staff.

Laboratory for Cancer Research.—A new laboratory at the Louisville General Hospital will be the site of studies of atomic energy products in cancer treatment to be conducted by the University of Louisville School of Medicine, one of 17 medical institutions to undertake this project in cooperation with the Oak Ridge Institute of Nuclear Studies. Dr. Herbert D. Kerman, associate professor of radiology, is in charge of the studies. He recently returned to the university after a two year leave of absence as radiologist with the Oak Ridge (Tenn.) Hospital and the Medical Division of the Oak Ridge Institute of Nuclear Studies.

MARYLAND

Society News.—The Baltimore City Medical Society will hold its annual meeting Dec. 19 at 1211 Cathedral St. At a joint meeting with the surgical section, Dr. Keith S. Grimson, professor of surgery, Duke University School of Medicine, Durham, N. C., will present "Treatment of Certain Gastrointestinal and Circulatory Disorders: Discussion of Controversial Medical and Surgical Measures (Illustrated)."

Dedication of Psychiatric Institute.—The Psychiatric Institute of the University of Maryland School of Medicine, Baltimore, was recently opened with a three day dedication program. Dr. Alan Gregg, vice-president, Rockefeller Foundation, New York, delivered the address at the dedication dinner. The following physicians also participated in the program: Ralph W. Gerard and Franz G. Alexander, Chicago; Rafael Lorente de No and Florence B. Powdermaker, New York; Stanley Cobb, Boston; H. Boyd Wylie, Ralph C. P. Truitt, Jacob E. Finesinger, John C. Whitehorn, and Maurice H. Greenhill, Baltimore; Thomas Hale Ham, Cleveland; George Saslow, St. Louis; and Holger Hyden, Gothenburg, Sweden.

The Psychiatric Institute provides 105 beds for inpatient care. Three floors of the building are to be devoted to outpatient clinic space, research laboratories, and teaching facilities. The

building is designed for the multiple emphasis of (1) psychiatric teaching, (2) integration of psychiatry with other medical disciplines, (3) research in medical education and the behavioral sciences, and (4) adequate provision for clinical services. Dr. Jacob E. Finesinger is director of the institute.

MASSACHUSETTS

Anesthesia Conference.—On Dec. 19 another in the series of combined anesthesia teaching conferences will be held at the Evans Memorial of the Massachusetts Memorial Hospitals, 750 Harrison Ave., Boston, from 7 to 9 p. m. Inhalation therapy and methods of artificial ventilation will be discussed.

Speech and Hearing Clinic.—The Boston University Speech and Hearing Center, recently established at 332 Bay State Road, combines the facilities of the university's School of Education, School of Medicine, counseling service, and the Massachusetts Memorial Hospitals, under the direction of Wilbert L. Pronovost, Ph.D., associate professor of speech education. Dr. David McL. Greeley, assistant dean at the university's School of Medicine, is medical director, and Dr. Leighton F. Johnson, professor of otolaryngology, is co-organizer. Both individual and group therapy will be conducted for elementary school children on Tuesday and Thursday or Wednesday and Friday afternoons. Special schedules will be arranged for high school students, adults, and children who cannot attend regular sessions. Diagnosis and treatment, including speech therapy, lip reading, and auditory training, will be available. No patient will be denied examination or treatment because of inability to pay.

NEW YORK

Radioisotope Laboratory.—A laboratory for the diagnosis and treatment of thyroid conditions by the use of radioisotopes was recently opened by the Beth-El Hospital in Brooklyn. For appointments, call HYacinth 5-1100, ext. 184.

Nutrition Research Grants.—The Nutrition Foundation, Inc., announces that grants totaling $93,000 have been approved for research in seven universities and medical centers and for educational work. These are in addition to earlier grants made for the year 1953 totaling $162,500. A total of $4,480,000 has been contributed in the past 11 years for research by the Nutrition Foundation, Inc., which is wholly supported by the food and related industries.

Symposium on Proctology.—The Medical Society of the State of New York, with the cooperation of the New York State Department of Health, has arranged a symposium on proctology (Dec. 18, 7:45 p. m. at the Hotel Utica in Utica) for the Utica Academy of Medicine; medical societies of the counties of Herkimer, Madison, and Oneida; and the Oneida County Chapter of the American Academy of General Practice. The following program will be presented:

Earl J. Halligan, Jersey City, N. J., Carcinoma of the Colon and Rectum.
Harold Courtney, Syracuse, Surgical Management of the Complicated Pelvirectal Abscess and Fistula.
Zacharias T. Bercovitz, New York, Modern Methods of Therapy and Long Range Evaluation of Treatments in Chronic Ulcerative Colitis.

Pilot Heart Disease Control Program.—A $50,000 a year pilot heart disease control and research program among state employees was recently launched. A contract has been signed by the health department and Albany Medical College to provide personnel, equipment, and facilities. The examinations and studies will be carried on at a cardiovascular health center to be located in the college. Present physical facilities and available staff of the new center will limit the original number of participating persons to about 2,000. Male employees between the ages of 40 and 54 in the Capitol District will be the first participants. Each participant will visit the center annually, entirely voluntarily. On request of the employee, results of the annual examination will be sent to his personal physician, who will follow up and treat the patient, utilizing the assistance of the center staff as he wishes. The center, which will be in operation by Jan. 1, 1953, will be staffed initially by a medical director, consulting cardiologist, fellow in medicine, medical technician, staff nurse, secretary, and a stenographer-receptionist.

New York City

Harvey Lecture.—Konrad E. Bloch, Ph.D., professor of biochemistry, University of Chicago, will deliver the third Harvey lecture of the current series at the New York Academy of Medicine, Dec. 18, on "The Biological Synthesis of Cholesterol."

Sigmund Pollitzer Lecture.—The department of dermatology and syphilology of the New York University Post-Graduate Medical School announces that the third Sigmund Pollitzer lecture will be given by Louis F. Fieser, Ph.D., Jan. 15, 1953, at 4 p. m. in the main lecture hall of the College of Medicine, 477 First Ave. Dr. Fieser is Sheldon Emery professor of organic chemistry of Harvard University, Cambridge, Mass. The title will be "Role of Cholesterol Companions in Health and Disease."

Award for Research in Pathology.—At its Nov. 13 meeting the Pathological Society of Philadelphia awarded the Gerhard gold medal to Dr. Jean Oliver, professor of pathology, State University of New York College of Medicine at New York City. Dr. Oliver's special interest in pathology has been the structural and functional aspects of diseases of the kidney. Previous recipients of the medal have been William Welch, Theobald Smith, F. d'Herrelle, Eugene L. Opie, Simon Flexner, Alfred N. Richards, Ph.D., Frank C. Mann, George H. Whipple, Warren H. Lewis, Margaret R. Lewis, A.B., and Paul R. Cannon.

Hospital News.—Dr. Julius Kleeberg, associate professor of medicine at the Hadassah-Hebrew University Hospital in Jerusalem, is spending six months in the Gastroenterology Research Laboratory of Mount Sinai Hospital under the direction of Franklin Hollander, Ph.D.——Mount Sinai Hospital will hold a clinical conference on diseases of metabolism on Dec. 15 at 8:30 p. m. in Blumenthal Auditorium. The program, which is open to the profession, includes:

Hemachromatosis: A Disorder of Iron Metabolism, Martin Sanders.
Gout: A Disorder of Purine Metabolism, Alfred J. Bollet.
Hereditary Hypercholesteremia: A Disorder of Lipid Metabolism, Stanley R. Drachman.

——The department of ophthalmology, Montefiore Hospital, invites members of the profession to a clinical conference Dec. 16 at 8:15 p. m. in the Binswanger Memorial Lecture Room. The following program will be presented:

Nonsurgical Management of Intermittent Exotropia, Edwin D. Billet.
Pathology of Intraocular Foreign Bodies, Abraham Schlossman.
Management of Ocular Complications in Neurosurgical Conditions, Max Chamlin.
Surgical Problems from the Eye Service, Samuel Gartner and Carlton C. Phillips.

OHIO

Lifetime Grant.—Dr. Victor Lorber is leaving Western Reserve University, Cleveland, to return to the University of Minnesota, Minneapolis, where he will pursue his research under his lifetime grant from the American Heart Association. This grant, which he received last year at 39, and which continues until he retires at 65, gives him $12,000 a year, with $8,500 more for assistants, expenses, and overhead.

Fellowships in Industrial Health.—The Institute of Industrial Health of the University of Cincinnati will accept applications for fellowships from graduates of class A medical schools who have completed at least two years training in an AMA-accredited hospital. The course consists of two years of training, followed by one year of practical experience in industry. During the first two years the stipends vary from $2,100 to $3,000; in the third year the candidate will be compensated by the industry in which he is completing his training. For information address the institute, University of Cincinnati, Cincinnati 19.

OREGON

Sigma Xi Chapter Installed.—Installation ceremonies for a new chapter of Sigma Xi were held at the University of Oregon Medical School, Portland, Nov. 6. The new chapter comprises about 125 Portland scientists. The installing officers were Linus Pauling, Ph.D., of the California Institute of Technology, and Dr. Lee E. Farr, chairman of the medical department of Brookhaven National Laboratory. The president of the chapter is Dr. John M. Pierson; the vice-president, Anthony A. Pearson, Ph.D.

PENNSYLVANIA

Hospital News.—A harelip and cleft palate clinic was recently organized for Erie and adjacent Pennsylvania counties by the state department of health. The clinic is open on the third Wednesday of each month at 9 a. m. in Hamot Hospital, Erie. ——A rheumatic fever clinic has been established at the general hospital in Lancaster, under the direction of Dr. Carl H. Hoover. This is the 17th clinic to be sponsored by the state health department in its program of prevention, diagnosis, care, and treatment of rheumatic fever and rheumatic heart disease.

Award to Dr. Engel.—At its annual meeting in Philadelphia, the Pennsylvania Public Health Association presented its annual award of merit to Dr. Gilson C. Engel, Philadelphia, "in recognition of distinguished service and outstanding activities in the interest of the public health of Pennsylvania." The presentation was made by Dr. I. Hope Alexander, director, Pittsburgh Department of Public Health, and president of the association during the past year. Dr. Engel, a former president of the Medical Society of the State of Pennsylvania, is professor of clinical surgery, Graduate School of Medicine, University of Pennsylvania, and associate professor of surgery, Jefferson Medical College of Philadelphia.

Philadelphia

Residency in General Practice.—Presbyterian Hospital has inaugurated a training program for physicians who wish to enter general practice. A one year residency in general practice, starting July 1, 1953, will be open to physicians completing a one year rotating internship at the hospital. Four such residencies will be offered annually. In each training unit the resident will be assigned a physician counselor from the staff of Presbyterian Hospital, who will be responsible for the training of the resident.

Hospital-University Alliance.—Pennsylvania Hospital and the University of Pennsylvania have formed an alliance under which the teaching activities and hospital facilities of the university's Graduate School of Medicine will be centered in the Pennsylvania Hospital at 8th and Spruce streets. Each institution will preserve its autonomy, provision being made for a joint administrative board. Patient care and clinical services now offered at the Graduate Hospital of the University at 19th and Lombard streets will be transferred to the new facilities at the Pennsylvania Hospital, which will continue to operate as a general hospital. One or more new buildings will be erected, and others will be altered to provide for improved patient care and teaching and research purposes. An expenditure of 8 million dollars is contemplated. The agreement stipulates that there shall be not less than 290 ward beds, 261 semiprivate beds, and 165 private beds, or not less than 716 in all. This will be a reduction in the total number of beds (802) in the present two hospitals but will provide a better balance between ward and private beds. About 130,000 sq. ft. of floor space will be provided for educational and research purposes of the Graduate School of Medicine. Members of the new and future medical staff of the Pennsylvania Hospital will be members of the faculty of the Graduate School of Medicine, with appropriate rank.

SOUTH CAROLINA

Society News.—At a recent meeting in Spartanburg the South Carolina Surgical Society elected Dr. Frederick E. Kredel of Charleston, president; Dr. George T. McCutchen, Columbia, vice-president; and Dr. William C. Cantey, Columbia, secretary-treasurer.

Annual Seminar.—The annual seminar sponsored by the medical and dental staff of the Self Memorial Hospital, Greenwood, was recently held in conjunction with a meeting of the Piedmont Radiological Society. Physicians participating in the program were:

Elbert L. Parsons, Durham, N. C., Modern Trends in the Management of Gout.
W. Emory Burnett, Philadelphia, Gastrointestinal Bleeding.
David F. James, Atlanta, Rheumatoid Arthritis.
Charles S. Jones, Atlanta, Silent Gallstones.
George M. Wyatt, Washington, D. C., Benign and Malignant Lesions of Bone.

TEXAS

University News.—At the University of Texas Medical Branch, Galveston, Dr. Raphael Mendez, director of the pharmacology laboratories of the Cardiology Institute, Mexico City, has been appointed lecturer in the department of pharmacology and toxicology.——Patrick Romanell, Ph.D., formerly of Wells College, Aurora, N. Y., has been appointed associate professor of philosophy and ethics of medicine and public health.——Dr. Ewing S. McLarty has been appointed director of the general practice preceptorial program.

VERMONT

Personal.—Dr. Romeo de Grandpre, Burlington, has been appointed associate medical director of the Junior League Blood Center of Milwaukee. Dr. de Grandpre has been on the research staff of the division of experimental medicine at the University of Vermont College of Medicine since 1950.——At the annual graduate week of the Academy of Medicine of Northern New Jersey, Dr. John H. Bland, associate professor of clinical medicine of the University of Vermont College of Medicine, Burlington, presented papers on "Metabolic Sequellae of Surgical Trauma and Its Therapy" and "Fluid and Electrolyte Balance in Selected Diseases."——Dr. Durwood J. Smith has been appointed professor of pharmacology and chairman of the department of pharmacology at the University of Vermont College of Medicine, Burlington. He succeeds Nicholas B. Dreyer, M.A., now at Woman's Medical College of Philadelphia.

VIRGINIA

University News.—Dr. Herbert W. Park III, director of medical service at Woodrow Wilson Rehabilitation Center at Fishersville, has been appointed professor of physical medicine and director of the Baruch Center of Physical Medicine at the Medical College of Virginia, Richmond. He succeeds Dr. Frances A. Hellebrandt who resigned last winter to accept a similar position at the University of Illinois.

Residents Honor Teacher.—Dr. William Branch Porter, professor of medicine, Medical College of Virginia, Richmond, was recently honored by his former residents. A scroll presented to Dr. Porter read: "In recognition of his many years of devoted service, unfailing interest, and inspirational teaching as professor of medicine at the Medical College of Virginia, we, his former residents, honor our esteemed teacher . . . by founding the William Branch Porter Society."

GENERAL

Society Election.—At the annual meeting of the American Neurological Association, held in Atlantic City, N. J., Dr. Hans H. Reese, Madison, Wis., was elected president; Dr. Roland P. Mackay, Chicago, president-elect; Dr. Thomas K. Davis, New York, first vice-president; Dr. James C. White, Boston, second vice-president; and Dr. H. Houston Merritt, New York, secretary-treasurer.

International Science Journal.—Science Service announces publication of an international science journal *Scientia International*, written in the new international auxiliary language, Interlingua. It is a monthly edition of Science Service's weekly magazine, *Science News Letter*, intended to carry information about science progress to areas where English is not the usual language. It is said to be readable at sight, even without study. The yearly subscription price is $2.

Orthopedic Appliances Brochure.—The Mellon Institute has made available reprints of its brochure "The Orthopedic Appliances Program at Mellon Institute: The First Five Years" by George H. Young, Ph.D., director of research. The brochure includes discussion of the operation of Mellon Institute, the Sarah Mellon Scaife Foundation, and the orthopedic appliances fellowship. It may be procured from the Mellon Institute, 4400 Fifth Ave., Pittsburgh 13.

Papanicolaou and Traut Receive Cancer Award.—Dr. Herbert F. Traut, professor of obstetrics and gynecology, University of California Medical School, San Francisco, and Dr. George N. Papanicolaou of Cornell University Medical College, New York, have received the 1952 American Cancer Society award "for distinguished service in cancer control." Dr. Papanicolaou was cited for his recognition of differences between cancer cells sloughed off the surfaces of body cavities and normal cells, and Dr. Traut for work in developing this fundamental information into a practical clinical cancer test.

Fellowship in Dermal Pathology.—This fellowship, sponsored by the American Academy of Dermatology and Syphilology, provides for one year opportunity for study in dermal pathology to a postgraduate student who has completed at least two years of training in dermatology or its allied branches, and a stipend of $2,000 will be given. The period of training will be spent at the Armed Forces Institute of Pathology, Washington, D. C., the appointment being subject to approval by the director of the institute. Dermatologists in training may obtain application blanks from Dr. Hamilton Montgomery, 102-110 Second Ave. S. W., Rochester, Minn., chairman, committee on pathology, American Academy of Dermatology and Syphilology. The next appointment available begins July 1, 1953.

Award in Health Education.—At the Cleveland Health Museum's anniversary luncheon, the Elisabeth S. Prentiss award in health education was presented to Dr. William W. Peter, of the Division of Health, Welfare and Housing of the Institute of Inter-American Affairs, Washington, D. C. The award consisted of a plaque and a citation. Dr. Peter served as a surgeon in a mission hospital during the Chinese Revolution of 1911. From 1917 to 1919 he was medical officer to a Chinese labor battalion in France. As director of the Council on Health Education, his efforts toward arousing the health conscience of the Chinese helped conquer the Foochow cholera epidemic in 1919. From 1934 to 1942 he was director of the U. S. Navajo (Indian) Service. Dr. Peter was associate professor of public health in Yale University School of Medicine, New Haven, Conn., for three years before joining the Institute of Inter-American Affairs in 1945.

Borden Award in Nutrition.—Nominations are solicited for the 1952 award of $1,000 and a gold medal made available by the Borden Company Foundation. The American Institute of Nutrition will make this award in recognition of distinctive research by investigators in the United States and Canada, which has emphasized the nutritive significance of the components of milk or of dairy products. The award will be made primarily for the publication of specific papers, but the judges may recommend that it be given for important contributions over an extended period. Employees of the Borden Company are not eligible. The formal presentation will be made at the annual meeting of the institute in the spring of 1953. The nomination, accompanied by such data relative to the nominee and his research as will facilitate consideration for the award, must, by Jan. 1, 1953, be in the hands of the chairman of the nominating committee, Leo T. Samuels, Ph.D., department of biochemistry, University of Utah College of Medicine, Salt Lake City 1.

Science Foundation Fellowships.—Applications for the second graduate fellowship program of the National Science Foundation are now available for graduate study during the 1953-1954 academic year in the mathematical, physical, medical, biological, and engineering sciences. Fellowships are limited to citizens of the United States. More than 500 fellows will be selected for the year. While the majority of fellowships will go to graduate students seeking masters' or doctors' degrees in science, some awards will be made to postdoctoral applicants, who will not be required to take examinations. Postdoctoral fellows will receive a stipend of $3,400. Married fellows will, on request, normally be provided an allowance of $350 plus $350 for each dependent child. A limited allowance to aid in defraying the fellow's cost of travel will be paid. Tuition and certain fees assessed and collected from persons of similar academic standing will be paid by the National Science Foundation. Application blanks for the current awards may be obtained from the Fellowship Office, National Research Council, Washington 25, D. C. Completed applications must be returned by Jan. 5, 1953.

Foot-and-Mouth-Disease Quarantine Lifted.—The U. S. Secretary of Agriculture and the president of Mexico have jointly announced, according to the *Scientific American,* that foot-and-mouth disease has been wiped out in Mexico and that all quarantines, which for several years have kept the United States-Mexico border closed to animal traffic, have been lifted. This contagious disease was stopped by a fourfold program carried out by a United States-Mexican Eradication Commission. All sick animals and those known to have been exposed were killed; all susceptible animals in areas near the centers of infections were inspected. Polluted premises were disinfected, and the land was tested before new stock was brought in. Between 1948 and 1950 all healthy stock was vaccinated. The United States contributed 125 million dollars to the campaign of eradication. At the height of the outbreak, 640 inspectors patrolled the border day and night on horseback, in jeeps, and in airplanes to see that no Mexican cattle or meat crossed into the United States. A permanent joint commission has been set up to prevent a repetition of the outbreak, and the U. S. Department of Agriculture has begun work on a 10 million dollar laboratory for the study of foot-and-mouth disease and other animal ailments.

Fellowships in Physical Medicine.—The National Foundation for Infantile Paralysis announces the availability of postdoctoral clinical fellowships in physical medicine and rehabilitation, covering a period of one to three years. Stipends are based on individual needs. An appropriation in March of Dimes funds has been made to cover the cost of the program. Eligibility requirements include United States citizenship, graduation from an approved medical school, completion of at least a one year internship in an approved hospital, and a license to practice medicine. The age limit is 40. In addition to these full-term fellowships, the National Foundation is making available short-term fellowships to physicians who wish to become better acquainted with physical medicine and rehabilitation as it relates to their particular specialties. Such training is being offered to physicians who, in addition to meeting the other requirements, have completed a minimum of one year residency in orthopedics, pediatrics, neurology, or internal medicine. These fellowships will cover a period of training of three months to one year at centers that place special emphasis on physical medicine in relation to the applicant's specialty. Information concerning both types of fellowships may be obtained from the Division of Professional Education, National Foundation for Infantile Paralysis, 120 Broadway, New York 5.

Military Surgeons Meeting.—At the annual meeting in Washington, D. C., the Association of Military Surgeons of the United States installed Rear Adm. Wincell McKendree Craig (MC) U. S. Naval Reserve, Rochester, Minn., as president. Dr. Leonard A. Scheele, Surgeon General, U. S. Public Health Service, who moved into the position of first vice-president, will head the group for 1954. At the annual dinner the association bestowed the Sir Henry Wellcome award on Col. Ryle A. Radke (MC), chief of medical service at Tokyo Army Hospital, Japan, for his essay on "The Military Significance of Amebiasis." The award consists of a silver medal, an engraved scroll, and an honorarium. The Gorgas medal for "distinguished service in preventive medicine for the armed forces" was conferred on Brig. Gen. James Steven Simmons (MC), retired wartime chief of preventive medicine in the Army, and now dean of the Harvard School of Public Health, Boston. The Seaman prize was awarded to Col. Ralph M. Thompson (MC) U. S. Air Force, deputy director of the Armed Forces Institute of Pathology in Washington, D. C., for an article on treatment of radiation injury, which appeared in the January, 1952, issue of *The Military Surgeon.* Founders medals, authorized in 1941 to commemorate the 50th anniversary of the Foundation of the Association of Military Surgeons, went to Col. James M. Phalen, Washington, D. C., U. S. Army, retired, editor of *The Military Surgeon;* Col. Robert J. Benford, Washington, D. C., (MC) U. S. Air Force, associate editor of *The Armed Forces Medical Journal,* and Capt. Charles W. Shilling, Washington, D. C., (MC) director of research for the Navy Bureau of Medicine and Surgery, for outstanding contributions to military medicine.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of cases of poliomyelitis were reported in the United States, its territories, and possessions in the weeks ended as indicated:

Area	Nov. 22, 1952	Nov. 15, 1952	Nov. 24, 1951
New England States			
Maine	1	7	..
New Hampshire	1	1	..
Vermont	2	1	..
Massachusetts	6	2	4
Rhode Island	2	4	..
Connecticut	3	3	8
Middle Atlantic States			
New York	46	63	18
New Jersey	10	11	5
Pennsylvania	26	32	6
East North Central States			
Ohio	21	57	8
Indiana	17	21	9
Illinois	45	48	12
Michigan	52	67	12
Wisconsin	28	15	11
West North Central States			
Minnesota	55	83	6
Iowa	30	44	2
Missouri	10	25	12
North Dakota	8	3	3
South Dakota	27	19	1
Nebraska	37	24	4
Kansas	16	24	7
South Atlantic States			
Delaware	1	..	..
Maryland	2	2	8
District of Columbia	1	..	..
Virginia	8	10	4
West Virginia	9	7	6
North Carolina	10	12	7
South Carolina	..	1	..
Georgia	11	16	3
Florida	23	18	5
East South Central States			
Kentucky	11	29	1
Tennessee	10	10	6
Alabama	3	6	6
Mississippi	..	8	10
West South Central States			
Arkansas	1	2	12
Louisiana	6	6	6
Oklahoma	9	15	2
Texas	14	17	42
Mountain States			
Montana	10	9	4
Idaho	5	15	3
Wyoming	1	7	8
Colorado	16	22	7
New Mexico	6	7	4
Arizona	10	14	..
Utah	7	12	13
Nevada	4	13	..
Pacific States			
Washington	28	18	8
Oregon	4	13	7
California	180	202	99
Territories and Possessions			
Alaska	9	7	..
Hawaii	1	1	..
Puerto Rico	..	..	..
Total	843	1,058	399

FOREIGN

Aero Medical Association.—At its recent meeting in Paris, the Aero Medical Association elected Major Gen. Charles Sillevaerts, vice-chairman of the Belgian Aero Club, president of the French-speaking branch to succeed Dr. Leon Binet. The new vice-presidents are Dr. Paul Garsaux, president, French Medical Council for Civil Aviation; Major Gen. F. A. Clerc, inspector general of aviation medicine for the Ministry of National Defense of France; Major Klaus Wiensinger, chief, Institute of Aviation Medicine, Swiss Air Force; and Commandant Edgard Evard, chief, Belgian Air Force Medical Service. Dr. Andre Allard, medical director, Sabena Airlines, was elected secretary, and Brussels was named the site of the next meeting of the French-speaking branch, to be held in September, 1953. At an official reception, engraved scrolls designating the recipient as a "friend of Paris" were presented to Dr. William R. Stovall, Washington, D. C., president of the association; Major Gen. Harry G. Armstrong, Washington, D. C., Surgeon General of the Air Force; Rear Adm. Bertram Groesbeck Jr., Washington, D. C., president-elect of the association; Col. Gustave Severin, Surgeon General of the Royal Swedish Air Force; Col. George B. Green (MC), U. S. Air Force, assistant air attaché in Paris; Lt. Col. W. L. Nolke, assistant medical director, Royal Netherlands Air Force; and Dr. Allard.

CORRECTION

Internships Available.—The U. S. Public Health Service writes concerning the item "Internships Available" in THE JOURNAL, Nov. 15, 1952, page 1137, that it is no longer required for applicants to express a willingness to remain with the Public Health Service for at least 12 months following the internship. The Public Health Service, which was the source of the original item, further points out that interns are appointed to the rank that is equivalent of first lieutenant in the Army instead of second lieutenant as previously reported.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* All centers where there are five or more candidates. Feb. 9-11, April 20-21 (Part II only), June 22-24 and Sept. 8-10 (Part I only). Candidates may file applications at any time, but the National Board must receive them at least six weeks before the date of the examination they wish to take. Final date for filing application for the February examination is December 29. Exec. Sec., Dr. John P. Hubbard, 133 South 36th St., Philadelphia 4.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written.* Various locations, July 17. Final date for filing applications is January 17. Sec., Dr. C. B Hickcox, 80 Seymour St., Hartford 15.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, May or June 1953. Final date for filing application for the oral examination is Jan. 15, 1953. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, Kingshighway and Euclid Ave., St. Louis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written.* Various Centers, Feb. 6, 1953. Final date for filing applications is Nov. 1. *Oral and Pathological, Part II.* Chicago, May 17-24, Final date for filing application is Feb. 1. Sec., Dr. R. L. Faulkner, 2105 Adelbert Road, Cleveland 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Various Centers, January 1953. Final date for filing applications was July 1. *Practical.* New York City, June 6-10, 1953. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Part II.* Chicago, Jan. 21-23. Sec., Dr. Harold A. Sofield, 122 South Michigan Ave., Chicago 3.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* New Orleans, April 21-25, 1953. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PEDIATRICS:. *Written.* Examinations under local monitors will be held on Jan. 16. This is the only written examination which will be given during 1953. *Oral.* Baltimore, Feb. 20-22; Memphis, March 27-29; Philadelphia, May 1-3; Detroit or Ann Arbor, June; Place undecided, Oct. 9-11 (tentative); Indianapolis, November. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION. *Oral and Written.* May 30-31. Final date for filing applications is March 15. Sec., Dr. Robert L. Bennett, 30 N. Michigan Blvd., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: Final date for receipt of case reports for the spring examination (May-June) is January 1 of each year. Final date for receipt of case reports for the fall examination (October-November) is June 1 of each year.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York City, Dec. 15-16. Final date for filing applications was Sept. 15. *Written.* San Francisco, April 30-May 1. Sec.-Treas., Dr. David A. Boyd, Jr., 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: *Oral.* Dec. 1-7. Final date for filing application was June 1. *Oral.* Tampa, April 8-15. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various Centers, March 1953. Final date for filing application is Dec. 1. Sec., Dr. John B. Flick, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Written.* Various Centers, December. *Oral.* Chicago, Feb. 7-11. Sec., Dr. Harry Culver, 30 Westwood Road, Minneapolis 16, Minn.

BOARD OF THORACIC SURGERY: *Written.* Various Centers, Feb. 27. Final date for filing applications is Jan. 1. Sec., Dr. Wm. M. Tuttle, 1151 Taylor Ave., Detroit 2.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1953 Annual Session, New York, June 1-5.

1953 Clinical Session, St. Louis, Dec. 1-4.

1954 Annual Session, San Francisco, June 21-25.

1954 Clinical Session, Miami, Florida, Nov. 30-Dec. 3.

ANNUAL CONGRESS ON INDUSTRIAL HEALTH, Drake Hotel, Chicago, Jan. 20-22. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

AMERICAN ACADEMY OF OBSTETRICS AND GYNECOLOGY, Palmer House, Chicago, Dec. 15-17. Dr. Ralph A. Reis, 116 S. Michigan Blvd., Chicago 3, Secretary.

AMERICAN COLLEGE OF RADIOLOGY, Palmer House, Chicago, Feb. 6. Mr. William C. Stronach, 20 North Wacker Drive, Chicago 6, Executive Secretary.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY:

EASTERN SECTION, Hotel Syracuse, Syracuse, N. Y., Jan. 7. Dr. Francis W. Davison, Danville, Pa., Chairman.

MIDDLE SECTION, Drake Hotel, Chicago, Jan. 19. Dr. Ralph J. McQuiston, 20 North Meridian St., Indianapolis 4, Chairman.

SOUTHERN SECTION, Andrew Jackson Hotel, Nashville, Tenn., Jan. 12. Dr. Lester A. Brown, 490 Peachtree St., N.E., Atlanta 3, Ga., Chairman.

WESTERN SECTION, Elks Club, Los Angeles, Jan. 24. Dr. Howard P. House, 1136 West Sixth St., Los Angeles 14, Chairman.

INTERNATIONAL POST-GRADUATE MEDICAL ASSEMBLY OF SOUTHWEST TEXAS, Municipal Auditorium, San Antonio, Texas, Jan. 27-29. Dr. John M. Smith Jr., P. O. Box 2445, San Antonio 6, Texas, Secretary.

NORTHWEST SOCIETY FOR CLINICAL RESEARCH, Seattle, Jan. 16-17. Dr. Arthur L. Rogers, 1216 S.W. Yamhill St., Portland 5, Ore., Secretary.

SECTIONAL MEETINGS, AMERICAN COLLEGE OF SURGEONS:

CINCINNATI, The Netherland Plaza, Jan. 19-21. Dr. M. M. Zinninger, Cincinnati General Hospital, Cincinnati 29, Chairman.

WESTERN SOCIETY FOR CLINICAL RESEARCH, Carmel, Calif., Jan. 30-31. Herbert N. Hultgren, Stanford Hospital, San Francisco 15, Secretary.

INTERNATIONAL

CONGRESS OF INTERNATIONAL LEAGUE AGAINST RHEUMATISM, Geneva and Zurich, Switzerland, Aug. 24-29, 1953. For information write: Dr. W. Tegner, The London Hospital, London E.1, England.

CONGRESS OF THE INTERNATIONAL SOCIETY OF SURGERY, Lisbon, Portugal, Sept. 15-20, 1953. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, General Secretary.

INTER-AMERICAN SESSION, AMERICAN College of Surgeons, Paulista Medical Association Bldg., Sao Paulo, Brazil, Feb. 9-12, 1953. Dr. Moacyr Eyck Alvaro, 1151 Conselacao, Sao Paulo, Brazil, Chairman.

INTERNATIONAL CONGRESS OF AUDIOLOGY, Groningen, Netherlands, June 5-6, 1953. Dr. Gunnar Holmgren, Strandvagen 5A, Stockholm, Sweden, President.

INTERNATIONAL CONGRESS OF ELECTROENCEPHALOGRAPHY AND CLINICAL NEUROPHYSIOLOGY, Boston, Mass., U. S. A., Aug. 18-21, 1953. Dr. Robert S. Schwab, Massachusetts General Hospital, Boston 14, Mass., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS FOR HISTORY OF SCIENCE, Jerusalem, Israel, August 3-7, 1953. Prof. F. S. Bodenheimer, Hebrew University, Jerusalem, Israel, President.

INTERNATIONAL CONGRESS ON MEDICAL LIBRARIANSHIP, London, England, July 20-25, 1953. Mr. W. R. LeFanu, % London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C.1, England, Chairman.

INTERNATIONAL CONGRESS OF MICROBIOLOGY, Rome, Italy, Sept. 6-12, 1953. For information write: Dr. V. Puntoni, Citta Universitaria, Rome, Italy.

INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY, Montevideo, Uruguay, March 1-7, 1953. Dirreccion General del Servico de Sanitad Militar, 8 de Octubre y Mariano Moreno, Montevideo, Uruguay, Secretariat of the Congress.

INTERNATIONAL CONGRESS OF OTORHINOLARYNGOLOGY, Amsterdam, Netherlands, June 8-15, 1953. Dr. W. H. Struben, J. J. Viottastraat 1, Amsterdam, Netherlands, Secretary.

INTERNATIONAL CONGRESS OF PAEDIATRICS, Havana, Cuba, Oct. 12-17, 1953. Prof. Felix Hurtado, 5a Avenue 124, Miramar, Havana, Cuba, President.

INTERNATIONAL CONGRESS OF RADIO-BIOLOGY, Copenhagen, Denmark, July 14-25, 1953. Prof. Flemming Norgaard, Oster Voldgade 10, Copenhagen K, Denmark, Secretary General.

INTERNATIONAL CONGRESS OF RADIOLOGY, Copenhagen, Denmark, July 19-25, 1953. Professor Flemming Norgaard, 10 Oster Voldgade, Copenhagen K., Denmark, Secretary General.

INTERNATIONAL CONGRESS OF THALASSOTHERAPY, Dubrovnick, Yugoslavia, May 17-25, 1953. Prof. C. Plavaic, Mavrodne Republick 51, Belgrade, Yugoslavia, Secretary General.

INTERNATIONAL CONGRESSES OF TROPICAL MEDICINE AND MALARIA, Istanbul, Turkey, Aug. 28-Sept. 4, 1953. Professor Dr. Ihsan Sükrü Aksel, Tunel Meydam, Beyoglu, Istanbul, Turkey, General Secretary.

INTERNATIONAL FERTILITY ASSOCIATION, New York, N. Y., U. S. A., May 25-31, 1953. Dr. Abner I. Weisman, 1160 Fifth Avenue, New York 29, N. Y., U. S. A., Associate Secretary General.

INTERNATIONAL HOSPITAL CONGRESS, London, England, May 25-30, 1953. Capt. J. E. Stone, 10 Old Jewry, London, EC2, England, Hon. Secretary.

INTERNATIONAL LEPROSY CONGRESS, Madrid, Spain, Oct. 3-10, 1953. Dr. Felix Contreras, Moreto 15, Madrid, Spain, Secretary.

INTERNATIONAL PHYSIOLOGICAL CONGRESS, Montreal, Canada, Aug. 31-Sept. 4, 1953. Dr. A. S. V. Burgen, Dept. of Physiology, McGill University, Montreal, Canada, Secretary.

INTERNATIONAL UNION AGAINST CANCER AND INTERNATIONAL CANCER RESEARCH COMMISSION, Joint Meeting, Bombay, India. Dec. 28. Prof. Khanolkar, Tata Memorial Hospital. Bombay, India, President.

INTERNATIONAL VETERINARY CONGRESS, Stockholm, Sweden, Aug. 9-15, 1953. Prof. Axel Isaksson, Institute of Veterinary Medicine, Stockholm 50, Sweden, Secretary.

PAN AMERICAN CONGRESS OF THE MEDICAL PRESS, Buenos Aires, Argentine, July 12-16, 1953. Secretaria del Congress, 763 Uriburu, Buenos Aires, Argentine.

PAN AMERICAN MEDICAL ASSOCIATION, International Medical Cruise Congress, S. S. Nieuw Amsterdam, Jan. 7-19. Executive Offices, 745 Fifth Ave., New York 22, N. Y.

WORLD CONFERENCE ON MEDICAL EDUCATION, British Medical Association House, Tavistock Square, W.C.1, London, England, Aug. 24-29, 1953. Secretariat: World Medical Association, 2 East 103d St., New York 29, N. Y., U. S. A.

WORLD CONGRESS OF THE WORLD CONFEDERATION FOR PHYSICAL THERAPY, London, England, Sept. 7-12, 1953. Miss M. J. Neilson, Chartered Society of Physiotherapy, Tavistock House, South, Tavistock Square, London, W.C 1, England, Secretary

DEATHS

Jeans, Philip Charles ⊕ Iowa City, Iowa; Chairman of the Council on Foods and Nutrition of the American Medical Association; died in Panama, Oct. 22, aged 69, of coronary thrombosis, while on a mission for the Institute of Nutrition, Central America and Panama. Dr. Jeans was born in Hillsboro, Ohio, Jan. 3, 1883. He graduated from the University of Kansas, Lawrence, in 1904 and received his degree of doctor of medicine from Johns Hopkins University School of Medicine in 1909. He spent the next four years as intern and resident in several hospitals. He joined Washington University School of Medicine in St. Louis in 1913 as an assistant and advanced to associate professor of pediatrics in 1924. Dr. Jeans then went to the State University of Iowa College of Medicine as professor of pediatrics, where he remained until June, 1952, when he retired as head of the department, remaining on the staff as professor emeritus. He was the ranking member of the Council on Foods and Nutrition of the American Medical Association, having served continuously since 1930. Since 1940 he was a member of the Food and Nutrition Board of the National Research Council and was made vice-chairman in 1951. He was chairman of the committee on dental health and a member of other special committees of that board. A specialist certified by the American Board of Pediatrics, Dr. Jeans served from 1938 to 1946 on the governing council of the American Pediatric Society and in 1950-1951 as president. He was a member of the scientific advisory committee of the Nutrition Foundation, a member of the American Institute of Nutrition, Society for Experimental Biology and Medicine, Society for Research in Child Development, Society for Pediatric Research, and the Bureau of Human Nutrition and Home Economics, and a member of the Nu Sigmu Nu, Alpha Omega Alpha, and Sigma Xi fraternities. In 1946, he received the Borden award for outstanding work in the field of nutrition. Dr. Jeans was the author of several books. The widely known book "Infant Nutrition," originally written by Dr. William McKim Marriott, was revised and rewritten by Dr. Jeans. His research included clinical studies of congenital syphilis; metabolic research; requirements of infants and children for nutritional essentials, particularly calcium, phosphorus, and vitamins A and D; and comparison of varieties of vitamin D in humans. He was an excellent clinician. Shortly after World War I he was asked by the Red Cross to help establish child welfare stations in the Balkans. Much of his work on the book "Prepubescent Syphilis" was done aboard ship en route to southeastern Europe. His text on "Clinical Pediatrics" for nurses has gone through four editions, and he was working on the fifth at the time of his death. In 1950, the U. S. Public Health Service sent him to Hawaii to lecture on nutrition. Dr. Jeans served the American Medical Association largely through the Council on Foods and Nutrition. His thorough knowledge of the Council's decisions helped guide its work unerringly. He had rare ability in resolving a debate with a few sentences, spoken forcefully but kindly. Dr. Jeans was modest and companionable, and he made many lasting friendships.

Strohm, Nelson Wilbert ⊕ Buffalo; born in Sharpsburg, Pa., in 1887; University of Buffalo School of Medicine, 1912; member of the American College of Chest Physicians and a regent for New York State; member of the American Trudeau Society and the American Academy of Tuberculosis Physicians; fellow of the American College of Physicians; past president of the Erie County Medical Society; associate in medicine at his alma mater; for many years diagnostician in the chest clinics of the city health department and served as director of the division of tuberculosis control; on the staffs of the Buffalo General and Edward J. Meyer Memorial hospitals; in various capacities associated with the J. N. Adam Memorial Hospital in Perrysburg, the Niagara Sanitarium at Lockport, the Veterans Administration Hospital in Batavia, and the state tuberculosis hospital at Ray Brook; died Oct. 22, aged 64, of coronary occlusion.

Mullowney, John James, Gainesville, Fla.; born in Seacombe, England, July 20, 1878; University of Pennsylvania Department of Medicine, Philadelphia, 1908; formerly professor of preventive medicine, hygiene, public health, medical history, and ethics at Meharry Medical College in Nashville, Tenn., where he was president from 1921 to 1938; lived in Peking, China, from 1908 to 1911, serving as professor of nervous and mental diseases at North China Union Medical College; inspector of tenement and lodging houses in Philadelphia, 1912-1913; assistant chief medical inspector of the state department of health from 1913 to 1917; head of the department of science and professor of chemistry and hygiene at Girard College in Philadelphia from 1917 to 1921, when he went to Meharry; author of "America Gives a Chance" and others; died Oct. 16, aged 73, of cerebrovascular accident.

Aichner, Oscar Fred, Erie, Pa.; Medical College of Indiana, Indianapolis, 1892; Jefferson Medical College of Philadelphia, 1893; died Aug. 10, aged 80.

Akwa, Carl Malcolm ⊕ Milwaukee; University of Wisconsin Medical School, Madison, 1945; interned at Mount Sinai Hospital; served during World War II; since 1951 in charge of the rehabilitation ward at the Veterans Administration Hospital in Wood, where he died Oct. 15, aged 31, of bronchopneumonia and disseminated lupus erythematosus.

Albrecht, Charles A. ⊕ Winona, Minn.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illlinois, 1899; an Associate Fellow of the American Medical Association; member of the Illinois State Medical Society; died in Winona General Hospital recently, aged 85, of arteriosclerosis.

Baird, Waldo Brown ⊕ Mount Carmel, Ill.; Eclectic Medical College, Cincinnati, 1910; affiliated with Gibson General Hospital in Princeton, Ind., and the Wabash General Hospital; died Oct. 17, aged 69, of metastatic sarcoma of the cerebrum.

Bergstein, Alfred Morton ⊕ Gallitzin, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1915; served with the American Expeditionary Forces in France during World War I; among his military honors were the Distinguished Service Cross, the Purple Heart medal with two wound chevrons, and the Croix de Guerre, awarded him by the French government; died Oct. 3, aged 61.

Bigelow, Samuel Edward, Fergus Falls, Minn.; Baltimore Medical College, 1904; died in the George B. Wright Memorial Hospital recently, aged 71.

Bristow, Bernard Tilley, Bessemer, Ala.; University of Tennessee College of Medicine, Memphis, 1924; served during World War I; died Oct. 1, aged 56, of coronary thrombosis.

Broz, William Rudolph ⊕ Seattle; Northwestern University Medical School, Chicago, 1935; served during World War II; died in Mercer Island, Wash., Oct. 21, aged 45, of coronary disease.

Budde, Alford Edward, Marianna, Fla.; Northwestern University Medical School, Chicago, 1908; served during World War I; formerly practiced in North Chicago, Ill., where he was health officer; at one time president of the board of the Victory Memorial Hospital and on the staff of St. Therese's Hospital in Waukegan, Ill.; died in Jackson Hospital Oct. 29, aged 67, of carcinoma of the liver.

Bushnell, William Francis, Elk Point, S. D.; State University of Iowa College of Medicine, Iowa City, 1903; served during World War I; for many years county health officer; for many years member and at one time president of the local school board; affiliated with St. Joseph Mercy Hospital; died Oct. 6, aged 72, of carcinoma of the esophagus.

⊕ Indicates Member of the American Medical Association.

Caines, Richard John Ridgway ✠ Fort Lauderdale, Fla.; Tufts College Medical School, Boston, 1914; member of the Massachusetts Medical Society; died in the Veterans Administration Center in Bay Pines Aug. 11, aged 76, of carcinoma of the pancreas with metastases.

Carroll, Arthur Leslie, Brooklyn; Long Island College Hospital, Brooklyn, 1907; for many years a member of the board of health; associated with the Swedish Hospital; died Oct. 20, aged 68, of coronary occlusion.

Christensen, Arthur Charles ✠ Grass Valley, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1923; affiliated with Behrens Memorial Hospital and Glendale Sanitarium and Hospital in Glendale; died in Plentywood, Mont., Oct. 18, aged 63, of coronary disease, while on a hunting trip.

Clark, Leslie Jesse ✠ Hemet, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1923; past president of the Riverside County Medical Society; president of the district school board; president of the medical staff of Community Hospital, where he died Oct. 9, aged 54, of coronary thrombosis.

Clarke, Elmer Albert D. ✠ Buffalo; University of Buffalo School of Medicine, 1911; assistant professor of obstetrics at his alma mater; served during World War I; affiliated with Buffalo General Hospital and Children's Hospital; died Oct. 22, aged 66, of bronchopneumonia and hypernephroma.

Coates, Thomas Gordon, Philadelphia; Howard University College of Medicine, Washington, D. C., 1899; died Aug. 8, aged 80.

Coffey, George W., Gadsden, Ala.; Howard University College of Medicine, Washington, D. C., 1903; died Sept. 22, aged 80, of myocarditis.

Cohn, Allan Largess ✠ San Francisco; University of California Medical School, San Francisco, 1917; affiliated with Mount Zion Hospital; died Oct. 4, aged 61.

Conyers, Joseph Leon, Gates, Tenn.; University of Tennessee College of Medicine, Memphis, 1925; died Oct. 9, aged 55.

Currence, John De Paul ✠ New York; St. Louis University School of Medicine, 1926; member of the Industrial Medical Association; specialist certified by the American Board of Physical Medicine and Rehabilitation; associate clinical professor of medicine at the New York Post-Graduate Medical School and Hospital and associate clinical professor of physical medicine and rehabilitation at New York University College of Medicine; affiliated with University Hospital, where he died Oct. 20, aged 53, of dissecting aneurysm of the aorta.

Cytronberg, Seweryn S. ✠ New York; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, Germany, 1914; served in the Russian Imperial Army during World War I; at one time assistant and associate professor of internal medicine, University of Warsaw; in 1942 nominated ordinary and later honorary professor of gastroenterology by the autonomous University of Guadalajara, Mexico, where he was lecturing; died Oct. 1, aged 59.

Davison, Royden Winthrop ✠ Spofford, N. H.; born Dec. 5, 1880; University of Pennsylvania Department of Medicine, Philadelphia, 1907; specialist certified by the American Board of Radiology; member of the Medical Society of New Jersey, Radiological Society of North America, and the American College of Radiology; formerly practiced in Trenton, N. J., where he was affiliated with New Jersey State Prison Hospital, St. Francis Hospital, and F. W. Donnelly Memorial Hospitals; died in Hanover Sept. 9, aged 71, of cerebral thrombosis.

DeFeo, Amos ✠ Chicago; Chicago College of Medicine and Surgery, 1915; died Oct. 30, aged 62, of coronary occlusion.

Dick, Everette Wesley, Singapore; College of Medical Evangelists, Loma Linda and Los Angeles, 1951; served as resident at Placer County Hospital in Auburn, Calif.; recently assumed duties as medical director of the Seventh Day Adventist Hospital; died Oct. 1, aged 28, of poliomyelitis.

Dixon, Henry Marshall, Mayo, Md.; Columbian University Medical Department, Washington, D. C., 1895; died Oct. 8, aged 81, of arteriosclerotic cardiovascular disease.

Ely, Richard Skinner ✠ West Townsend, Mass.; Dartmouth Medical School, Hanover, N. H., 1891; past president of the Massachusetts Medical Society and the Worcester North District Medical Society; served on the school board and board of health, and as school physician; died Oct. 8, aged 88.

Engle, Howard Missimer ✠ San Francisco; Hahnemann Medical College and Hospital of Philadelphia, 1896; affiliated with Hahnemann Hospital, where he died Oct. 6, aged 78, of cancer.

Fahey, Edward W. ✠ St. Paul; Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1901; supreme physician for the Knights of Columbus; died in St. Joseph's Hospital Oct. 5, aged 75, of coronary disease and mesenteric thrombosis.

Godbey, John Quincy ✠ Glen Daniel, W. Va.; St. Louis College of Physicians and Surgeons, 1918; died in St. Francis Hospital, Charleston, Oct. 25, aged 63.

Griffith, John Quintin, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1893; member of the American Society for Clinical Investigation; died Oct. 19, aged 91.

Harrison, MacMillar ✠ Palmetto, Fla.; Medical Department of Tulane University of Louisiana, New Orleans, 1911; died Aug. 16, aged 66, of carcinoma of the lung.

Hawley, James Leeper, Tyler, Texas; Baylor University College of Medicine, Dallas, 1935; member of the American Trudeau Society; affiliated with East Texas Tuberculosis Sanatorium; died Oct. 12, aged 42.

Haynes, John Stephen ✠ Evansville, Ind.; Harvard Medical School, Boston, 1949; formerly an assistant surgeon in the U. S. Public Health Service Reserve; at one time industrial physician for the Standard Oil Company in Whiting and the U. S. Steel Company in Chicago; died recently, aged 34.

Holly, Julius David ✠ Baltimore; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1921; member of the American Society of Anesthesiologists; died Oct. 9, aged 54.

Horner, Ernest Justin ✠ Jonesboro, Ark.; University of Arkansas School of Medicine, Little Rock, 1918; served during World War I; died in Yellville Oct. 4, aged 61, of coronary thrombosis.

Iddings, John Warren ✠ Crown Point, Ind.; Northwestern University Medical School, Chicago, 1906; fellow of the American College of Surgeons; formerly member of the state board of health and county health commissioner; served during World War I; past president of the Lake County Medical Society; affiliated with St. Mary's Mercy Hospital and the Methodist Hospital in Gary, where he died Oct. 21, aged 73, of heart disease.

Jenkins, Don Juan ✠ Daingerfield, Texas; Vanderbilt University School of Medicine, Nashville, 1887; served as county health officer; at one time surgeon for the Missouri, Kansas and Texas Railroad; for many years president of the National Bank of Daingerfield; died Oct. 4, aged 89, of uremia.

Jones, Frank Sylvester, Enid, Okla.; Leonard Medical School, Raleigh, N. C., 1911; affiliated with St. Mary's Hospital; died Oct. 4, aged 69, of cerebral hemorrhage.

Karn, Robert Burns ✠ St. Louis; University of Tennessee College of Medicine, Memphis, 1932; affiliated with Lutheran Hospital, where he died Oct. 10, aged 47, of heart disease.

Kidder, John Jesse ✠ Salamonia, Ind.; Eclectic Medical Institute, Cincinnati, 1896; died in St. Joseph's Hospital, Fort Wayne, Oct. 11, aged 81.

King, Earl Harold ✠ Saratoga Springs, N. Y.; Eclectic Medical College of the City of New York, 1898; specialist certified by the American Board of Radiology; member of the American Roentgen Ray Society, Radiological Society of North America, and the American College of Radiology; school physician; chief roentgenologist and radiologist at Saratoga Hospital; died Oct. 22, aged 76, of cerebral thrombosis.

Knight, Samuel Lewis, Mendenhall, Miss.; University of Nashville Medical Department, 1906; veteran of the Spanish-American War; died in the Veterans Administration Hospital, Jackson, Oct. 15, aged 75, of cerebrovascular accident.

Kristan, George Frank ✠ Chicago; Loyola University School of Medicine, Chicago, 1933; affiliated with St. Elizabeth's Hospital, where he died Oct. 26, aged 45, of uremia, acute nephritis, and hypertension.

Lambert, Adrian Van Sinderen ✠ New York City; Columbia University College of Physicians and Surgeons, New York, 1896; member of the founders group of the American Board of Surgery; clinical professor emeritus of surgery of his alma mater; member and past president of the American Association for Thoracic Surgery; consulting surgeon, Seaview Hospital in West New Brighton, Bellevue Hospital, Presbyterian Hospital, and New York Orthopaedic Dispensary and Hospital; died in Doctors Hospital Oct. 15, aged 80.

Lehmann, Paul ✠ New York City; Christian-Albrechts Universität Medizinische Fakultät, Kiel, Prussia, Germany, 1910; died in Mount Sinai Hospital Oct. 19, aged 66.

Lock, Arthur Lincoln ✠ Rock Valley, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1913; for 20 years served on the public school board, for many years as president; surgeon for the Chicago, Milwaukee and St. Paul Railway; on the staff of the Hull (Ia.) Hospital; died Oct. 3, aged 67, of carcinoma of the pancreas and liver.

Lyle, William David, Havana, N. D.; Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1896; died in Britton (S. D.) General Hospital Oct. 10, aged 81, of virus pneumonia and coronary sclerosis.

McDonnell, James J. ✠ Pueblo, Colo.; Trinity Medical College, Toronto, Canada, 1896; county physician; formerly county coroner; died in St. Mary's Hospital Oct. 14, aged 81, of gastric cancer.

Napieralski, Stella Henrietta, Hinsdale, Ill.; Chicago College of Medicine and Surgery, 1916; died in Hinsdale Sanatarium and Hospital Oct. 28, aged 58, of burns suffered when her clothing caught fire as she was raking leaves in her yard.

Noble, Joseph Glass, Muskogee, Okla.; Baltimore Medical College, 1903; died in the Veterans Administration Hospital recently, aged 74, of bronchopneumonia.

Parker, Edward Stuart ✠ Ida Grove, Iowa; State University of Iowa College of Medicine, Iowa City, 1908; state senator; served during World War I; affiliated with Ida Grove Hospital, where he died Oct. 6, aged 70, of coronary occlusion.

Rambo, Cyrus Cleveland ✠ Creston, Iowa; University of Colorado School of Medicine, Denver, 1911; died Sept. 19, aged 66, of cerebral thrombosis and arteriosclerosis.

Rendleman, John J. ✠ Cairo, Ill.; University of Tennessee College of Medicine, Memphis, 1885; Jefferson Medical College of Philadelphia, 1886; veteran of the Spanish-American War; affiliated with Missouri Pacific Hospital in St. Louis and St. Mary's Hospital; died Oct. 11, aged 89, of hypostatic pneumonia and cerebral thrombosis.

Robertson, Samuel N., Sulphur Rock, Ark.; Barnes Medical College, St. Louis, 1907; died in Batesville Oct. 12, aged 73, of cancer.

Rogers, Joseph Edward, Cheviot, Ohio; Medical College of Ohio, Cincinnati, 1904; served during World War I; affiliated with Deaconess Hospital in Cincinnati; died Oct. 29, aged 74, of cerebral thrombosis.

Rogers, Robert Campbell ✠ Bloomington, Ind.; University of Louisville (Ky.) Medical Department, 1903; served during Spanish-American War and World War I; for many years county health officer; formerly county coroner; from 1925 to 1929 served on the city council; affiliated with Bloomington Hospital; died Oct. 6, aged 82, of cardiovascular renal disease.

Rookledge, Percival L., Livingston, Calif.; University of Southern California School of Medicine, Los Angeles, 1904; died Oct. 11, aged 74, of coronary occlusion and arteriosclerosis.

Royall, M. A., Elkin, N. C.; College of Physicians and Surgeons, Baltimore, 1885; for two terms served as mayor; in 1892 elected to the state senate; for many years affiliated with Hugh Chatham Memorial Hospital, where he died Oct. 11, aged 90, of hypertensive cardiovascular disease and terminal pneumonia.

Rubin, Herman W. ✠ Beverly Hills, Calif.; Long Island College Hospital, Brooklyn, 1910; specialist certified by the American Board of Otolaryngology; associate clinical professor of otolaryngology at College of Medical Evangelists, Loma Linda and Los Angeles; served during World War II; affiliated with White Memorial and Los Angeles County hospitals in Los Angeles; died in Jewish Hospital, Brooklyn, Oct. 13, aged 65.

Segal, Julius, Philadelphia; Jefferson Medical College of Philadelphia, 1904; died Oct. 12, aged 80, of cerebral hemorrhage.

Sonneborn, George A., Philadelphia; Jefferson Medical College of Philadelphia, 1905; died Oct. 4, aged 69, of coronary occlusion.

Spencer, Norine Devere, Chicago; Bennett Medical College, Chicago, 1908; died in Columbus Hospital Oct. 20, aged 61, of bile peritonitis.

Stambaugh, Charles J., Reedsville, Pa.; Medico-Chirurgical College of Philadelphia, 1899; one of the founders and on the consulting staff at Lewistown (Pa.) Hospital, where he died Oct. 6, aged 82, of congestive heart failure.

Stewart, Ralph B., Washington, D. C.; Howard University College of Medicine, Washington, 1911; also a graduate in pharmacy; formerly affiliated with the U. S. Public Health Service; died Oct. 14, aged 81, of a heart attack.

Street, Daniel Baen ✠ Jersey City, N. J.; Columbian University Medical Department, Washington, D. C., 1897; past president of the Hudson County Medical Society; veteran of the Spanish-American War; affiliated with Jersey City Medical Center, where he died Oct. 22, aged 77, of bronchogenic carcinoma.

Sulzbacher, Carl Isadore ✠ Los Angeles; University Medical College of Kansas City, Mo., 1899; died Oct. 21, aged 76.

Sutliff, Stephen Dana Jr., Chambersburg, Pa.; Medical College of Virginia, Richmond, 1929; served during World War II; associate medical director of the Baltimore and Ohio Railroad; died in Baltimore Oct. 5, aged 50, of cirrhosis of the liver.

Thomas, Charles Carroll ✠ Chicago; the Hahnemann Medical College and Hospital, Chicago, 1906; formerly medical school inspector and health officer; died Oct. 30, aged 72, of coronary thrombosis and arteriosclerosis.

Timlin, James William ✠ Kearny, N. J.; Fordham University School of Medicine, New York, 1913; died in West Hudson Hospital Oct. 3, aged 71, of uremia and arteriosclerotic cardiovascular renal disease.

Tyre, Joseph Lawton ✠ Screven, Ga.; Atlanta College of Physicians and Surgeons, 1910; past president of the Wayne County Medical Society; formerly mayor; served during World War I; died in Oglethorpe Sanatorium in Savannah, Ga., Oct. 3, aged 66, of intestinal obstruction, pneumonia, and heart disease.

DIED WHILE IN MILITARY SERVICE

Bailey, Perry Wilson ✠ Phoenix, Ariz.; born in Cleveland Dec. 25, 1894; Indiana University School of Medicine, Indianapolis, 1927; interned at Cincinnati General Hospital; pharmacist in the interior of Mexico during Mexican Border Campaign; served in France during World War I; in private practice in Fort Wayne, Ind., until 1942; volunteered for active duty, serving in Army Medical Corps at Fifth Field Hospital, where he received Bronze Star for service during Philippine Campaign; at conclusion of World War II assigned to Veterans Administration Hospital in Phoenix, Ariz., as chief of eye service until 1948, when he returned to private practice; a lieutenant colonel in the United States Army Reserve; volunteered for Army Medical Corps at outbreak of Korean hostilities and was assigned to 22nd Evacuation Hospital as chief of eye, ear, nose, and throat service; later assigned to Tokyo General Dispensary, where he was chief of eye, ear, nose, and throat service; on leave to take oral examination for American Board of Ophthalmology; died in Chicago Sept. 27, aged 57, of coronary thrombosis.

GOVERNMENT SERVICES

SELECTIVE SERVICE SYSTEM

Deferment of Priority 3 Physicians to Serve as Hospital Residents.—The National Advisory Committee to the Selective Service System, Washington, D. C., has issued Information Bulletin, volume 4, number 5, which is as follows: When the supply of Priority 1 and Priority 2 physicians is exhausted, as will occur in the near future, the only source of physicians available for service as junior medical officers will be recent medical graduates who are obligated for military service under the basic Selective Service Law and other medical graduates who are in Priority 3 under the provisions of Public Law 779. In order that this group may be available for service before older Priority 3 physicians are called, the National Advisory Committee recommends that, until further notice, medical graduates be considered available for military service immediately on completion of one year of internship and not be recommended for deferment for residency training.

Hospitals should fill their residencies from: (1) medical graduates who already have had military service, which constitutes almost 80% of current interns; (2) physicians who are being discharged from service, the number of whom now equals the number of physicians being called to active duty; and (3) women and other physicians who are not obligated for military service. The National Advisory Committee also recommends that hospital residents registered under the basic Selective Service Law and those in Priority 3 under Public Law 779 be released when called by Selective Service and replaced by physicians from the above suggested groups. Special consideration should be given to those who have only a few months to complete their training. These must be considered on an individual basis considering both the person and the institution.

ARMY

Helicopter Ambulance Units.—Helicopter ambulance units have been authorized as an integral part of the organization of the Army Medical Service in the theater of operations, the Department of the Army has announced. The new units will supplement rather than replace conventional means of evacuation, including litter jeeps and ambulances. All patients, except those requiring emergency surgery or other definitive care, will continue to be evacuated in vehicles where ground evacuation is feasible.

Helicopter ambulance units will include five two-rotor utility helicopters capable of carrying three litter patients or four ambulatory patients, together with a medical attendant and a pilot. The craft will be flown by Medical Service Corps lieutenants who have received training in basic aviation and helicopter operation.

Medical Service Corps officers are being encouraged to apply for helicopter training. Applicants without previous military or civilian flying experience are being accepted for the program provided they are physically qualified for flight duty and have not passed their 30th birthday. Training will be conducted only at Fort Sill.

In addition to the five pilots, the new units will have a Medical Service Corps captain as commanding officer, an operations officer, and 21 enlisted technicians. The first helicopter ambulance unit is being activated at the Medical Field Service School, Fort Sam Houston, Texas, where it will be used for training purposes. Additional units will be formed in Korea and elsewhere as personnel and equipment become available.

Five Day Symposium.—The newest developments in general and military medicine will be reviewed in a five day symposium at Brooke Army Hospital, Fort Sam Houston, Texas, Dec. 8-12. This will be the first course sponsored by the Surgeon General that will integrate the medical specialties and their subsections in one comprehensive program. Similar courses are planned for 1953 at Walter Reed, Letterman, and Fitzsimons as well as Brooke Army hospitals. Eligible to attend the symposium at Brooke Army Medical Center are medical officers on active duty and those in the armed forces reserves, the National Guard, and from other departments of the armed forces.

Lectures and discussions by nationally known specialists in each field are scheduled for the mornings to be followed by clinics and demonstrations each afternoon. Lecturers and discussants will include experts in internal medicine, surgery, obstetrics and gynecology, neuropsychiatry, otolaryngology, ophthalmology and pathology, and their related specialties.

ATOMIC ENERGY COMMISSION

Fellowships in Industrial Medicine.—Eight fellowships in industrial medicine will be offered by the U. S. Atomic Energy Commission for the 1953-1954 academic year. The fellowship program, begun by the AEC three years ago, is designed to provide advanced training and on-the-job experience for physicians in the field of industrial medicine, particularly in relation to the atomic energy industry. The fellowships are open to citizens who hold doctor of medicine degrees from approved medical schools and who have had at least one year of internship. In exceptional cases, equivalent experience may be accepted in lieu of the internship requirement. Successful candidates must be investigated by the FBI and approved by the AEC before receiving fellowships.

Awards are for one year's academic training at institutions offering approved graduate courses in industrial medicine, which can provide special training facilities in the health problems associated with the atomic energy program. Normally, fellows will be eligible for a second, or in-plant, training year on successful completion of the academic year. There is a critical need for qualified industrial physicians in atomic energy installations, and at the end of the two year training period fellows may find employment in the program; however, there will be no commitment to continue the applicant's training beyond the first year or to provide employment for him on the completion of training.

The stipend during the first year is $3,600, with $350 additional for a wife and for each dependent child. Tuition and laboratory fees will be paid. The stipend for the second year is $6,000, with no additional amounts for a wife or children. Applications should be submitted by Jan. 1, 1953, to AEC Fellowships in Industrial Medicine, Atomic Energy Project, University of Rochester, School of Medicine and Dentistry, Rochester, N. Y.

DEPARTMENT OF DEFENSE

New Library Organization.—At a dinner meeting, Oct. 24, in Washington, D. C., a new organization, Friends of the Armed Forces Medical Library, came into being. The purpose of the new organization is to promote knowledge of, and interest in, the functions, resources, and services of the Armed Forces Medical Library and to support programs for its development. Membership is open to anyone interested on nomination by a member and approval of the executive committee. The dues are $2 a year. Officers elected for a two year term are Drs. Henry R. Viets, chairman; Robert M. Stecher, secretary-treasurer; and Edward H. Cushing, E. B. Krumbhaar, and Atherton Seidell, executive committee members. Persons interested may write to the Secretary-Treasurer, Friends of the AFML, Armed Forces Medical Library, Washington 25, D. C.

The Association of Honorary Consultants of the Armed Forces Medical Library, Inc. is now in the final stages of court proceedings leading to dissolution of the corporation. Dr. Wilburt C. Davison of Duke University, retiring president of the older organization, acted as chairman at the dinner meeting.

NAVY

Award for Research on Filariasis.—Lt. Leo A. Jachowski Jr., MSC, of the Naval Medical Research Institute, Bethesda, Md., was given the Bailey K. Ashford award in tropical medicine at the meeting of the American Society of Tropical Medicine on Nov. 14 at Galveston, Texas. The award was given to him primarily in recognition of his recent work in American Samoa on the epidemiology and control of filariasis. Lieutenant Jachowski showed that the act of transmission of filariasis takes place when a species of mosquito called Aedes polynesiensis bites persons outdoors. The importance of this finding may be realized when one remembers that today the principal means of controlling malaria and some other insect-borne diseases is to apply residual insecticides to the inside walls of houses. Such a control program would have little effect on the transmission of filariasis in Samoa. Lt. Jachowski's work demonstrates that it is essential to have an intimate knowledge of the habits of Aedes polynesiensis in other South Pacific islands also, before control measures can be planned intelligently.

AIR FORCE

Foreign Officers Inspect Aeromedical Facilities.—Fourteen high-ranking medical officers of other nations landed Nov. 21 at Randolph Field for an inspection of aeromedical facilities in that area. They were guests of the commandant of the Air Force School of Aviation Medicine. The group, which was accompanied by Major Gen. Harry G. Armstrong, Surgeon General of the Air Force, had been attending the annual meeting of the Association of Military Surgeons in Washington, D. C. In the delegation were officers from the Thai Air Force, the Republic of Korea, Canada, Greece, Australia, Great Britain, Yugoslavia, Israel, Finland, and Belgium. The party was entertained at a Mexican dinner in the Fiesta House at La Villita. After a briefing on aviation medicine and a tour of the school laboratories, the medical officers visited the Alamo and examined air evacuation planes and procedures of the Military Air Transport Service at Kelly Air Force Base. Another dinner was scheduled at the Randolph officers' club; then they took off for Dayton, Ohio, to see the Aero Medical Laboratory on their way back to Washington.

VETERANS ADMINISTRATION

Symposium on Breast Cancer.—A symposium on breast cancer was held at the Crile VA Hospital, 7300 York Road, Cleveland, Dec. 5, 1952, at 6:00 p. m. The panel consisted of Dr. L. Henry Garland, clinical professor of radiology, School of Medicine, Stanford University; Dr. Ira T. Nathanson, assistant professor of surgery, Harvard University; and Dr. Cushman Davis Haagenson, associate professor of clinical surgery, College of Physicians and Surgeons, Columbia University, and director, tumor department, Delafield Hospital, New York. The moderator was Dr. Hymer L. Friedell, professor of radiology, Western Reserve University School of Medicine.

New Hospital Managers.—Dr. John W. Claiborne Jr., manager of the VA Hospital at Jefferson Barracks, Mo., will become manager of the new 496 bed general medical and surgical hospital in St. Louis. Dr. Joseph B. Bounds, head of the VA Hospital at Tomah, Wis., was appointed manager of the general medical and surgical hospital at Jefferson Barracks to succeed Dr. Claiborne. Dr. Benjamin F. Jackson, chief of professional services at the Fort Lyon, Colo., hospital, will succeed Dr. Bounds as manager at Tomah. Dr. Lewis G. Beardsley, in charge of the VA Hospital at Newington, Conn., will manage the new 880 bed hospital at West Haven, Conn., when it is opened next summer.

Hospital News.—Dr. Paul D. White of Boston addressed the staff of the VA Hospital at Dwight, Ill., Oct. 3, on "Personal Experiences in Cardiology," and Dr. Burrill B. Crohn of New York City addressed the staff on Oct. 7 on "Regional Ileitis."

PUBLIC HEALTH SERVICE

Small Plant Health Programs.—The Public Health Service has just issued its Publication 215, entitled "Small Plant Health and Medical Programs." The report is concerned primarily with the organization and methods of providing health services in industry by physicians and nurses. In addition to a discussion of industrial health and medical services and the type and extent of programs now existing in small plants, the report includes detailed descriptions of several programs. It stresses particularly various types of cooperative programs that have made it possible for small plants to provide health services to their employees. The publication was prepared to meet requests for current information and to help stimulate the development or expansion of small plant health programs. It is for sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 50 cents per copy.

Personal.—Earl Stadtman, biochemist of the National Heart Institute, will receive the $1,000 Paul-Lewis Laboratories 1953 award in enzyme chemistry, the American Chemical Society has announced. Presentation will be made at the society's meeting in Los Angeles next spring. Dr. C. J. Van Slyke, director of the National Heart Institute, was presented with a medal and certificate for outstanding achievement by the faculty and Medical School of the University of Minnesota on Sept. 22.

MISCELLANEOUS

Warning—Swift's Canned Dried Egg Yolk.—The Food and Drug Administration, Washington, D. C., issued a warning Nov. 28 to discontinue using and selling Swift's canned dried egg yolk. The product is a new food packed at the Keokuk, Iowa, plant of Swift and Company, Chicago, in 1½ oz. cans, with a nation-wide distribution. No other foods of Swift and Company are involved. The matter came to the attention of the Food and Drug Administration a few days ago when a child in Washington, D. C., was taken to the hospital with a Salmonella type infection. The parents said that an item of the child's diet was the dried egg yolk. Samples of Swift's dried egg yolk were collected and examined at the National Institutes of Health and the Food and Drug Administration. National Institutes of Health reported Salmonella type organisms in some of the cans that they had examined. Later the Food and Drug Administration also found these organisms in cans with the same code mark and in other code lots. Several other lots have been examined and found free of contamination. Foods contaminated with Salmonella germs may cause gastric upsets, diarrhea, stomach cramps, fever, nausea, and vomiting. In infants this illness can be serious. Each of the four infants reported ill has since recovered after receiving competent medical care. Although none of these cases has definitely been proved to have been caused by the egg yolk, Swift and Company believes that it is in the public interest to temporarily remove the product from the market. The company reports that the product is prepared with maximum care including pasteurization and is subjected to rigorous scientific control.

National Food and Nutrition Institute.—About 400 representatives of government and nongovernment agencies attended a National Food and Nutrition Institute, Dec. 8-10 in Washington, D. C. Sponsors of the conference were the Department of Agriculture, the U. S. Public Health Service, and the Interagency Committee on Nutrition Education and School Lunch. The three day sessions emphasized the major problems in food and nutrition and provided guidance for educators and other leaders in this field. Topics discussed included food supplies for good nutrition, problems in food distribution that affect nutrition, emergency food planning, achievement of a state of good nutrition for all persons, food and nutrition education, nutrition as a factor in disease, and food laws and food protection. The program comprised a series of formal addresses, discussion groups, dinner meetings, and panels.

FOREIGN LETTERS

BRAZIL

Pancreatoduodenectomy. — Eight cases of pancreatoduodenectomy are reported by Dr. Eurico de Silva Bastos, professor at the Faculdade de Medicina de São Paulo. The technique used by him was the following: (*a*) removal en masse of the duodenum, the pancreas, and adjacent tissues; (*b*) implantation of the common bile duct into the jejunum; (*c*) anastomosis of the residual portion of the pancreas to the jejunum, distally to the bilidigestive anastomosis and proximally to the gastrojejunostomy; and (*d*) gastrojejunal anastomosis performed distally to the intestinal implantation of the common duct and the pancreatic duct. These operations were performed in either one or two stages. The failures of pancreatoduodenectomy are generally due to the difficulty of a preoperative diagnosis and even, sometimes, to the difficult and doubtful diagnosis on the surgical table. To obtain real effects from such a radical operation it has to be done early, sometimes even without the absolute security of a histopathological diagnosis but after the critical evaluation of all symptoms and signs, though none of them is characteristic.

Allergy Due to Helminthiasis.—Dr. Orlando H. França reported recently that in the examination of 150 allergic patients he found 47 (31.3%) cases of helminthic parasitoses. The helminths found were, in decreasing frequency, Trichuris trichiura, Ascaris lumbricoides, Necator americanus, Strongyloides stercoralis, Hymenolepsis nana, and Taenia solium. The allergic manifestations were: dermatitis 21 cases (44.7%), urticaria and edema 12 cases (25.5%), rhinitis 5 cases (10.6%), bronchitis 4 cases (8.5%), migraine 2 cases (4.3%), other skin affections 2 cases (4.3%), and conjunctivitis 1 case (2.1%). Dr. França's conclusions are as follows: 1. The skin is the shock tissue most affected by helminthic allergies. 2. It is not yet possible to establish any relationship between the kind of parasite, the degree of infestation, the nature of the lesion, and its intensity. 3. Of the patients with skin diseases 18% were cured after anthelmintic therapy. Undoubtedly these patients' allergies were solely due to helminthic disease.

CHILE

Progress of Hospitalized Malnourished Infants.—Dr. J. Meneghello and his colleagues recently studied the progress of 1,539 undernourished infants in hospitals. The problem of undernourishment in infants is very important owing to its frequency and its severity. The development and growth of these infants was the center of the study, and, accordingly, the authors divided the patients in four groups: (1) those who showed real progress (52%); (2) those who showed progress during a prolonged reparative period (22%); (3) those who neither lost nor gained weight (23%); and (4) those who showed a continual decrease in weight (3%). In the experience of the authors, neither the age, hyposomia, or the concomitance of infectious processes or of acute nutritional disturbances influenced the changes in the weight. The study revealed the multiplicity and peculiar character of infections in the undernourished infant. Thus, the number of infections or of acute nutritional disturbances was less in those who made considerable weight gains. The duration of the infections was longer in these infants than it is normally, and in 10 to 40% of the patients the infections had a more or less serious repercussion on the salt metabolism and produced severe dehydration. The authors observed that in about 50% of the cases there was a coexistence of different infections. An analysis showed the following infections to be prevalent: 1. In 100 cases a detailed study showed clinical and bacteriological evidence of the dysenteric syndrome, even after the administration of drugs. In approximately 50% of the cases Shigella flexner was found in the stool; with less frequency Proteus morganii, other species of Shigella, and Endamoeba histolytica, particularly Salmonella bacteria, were isolated. The sulfonamides took a longer time to cure the syndrome, and stool alterations were still present after 10 days of treatment in certain cases. Streptomycin had a better effect. 2. In 226 cases of otitis a clinical and bacteriological study was made. In the majority of cases there was evidence of dehydration, and in 30% of these cases otorrhea lasted up to four weeks. The most frequent agent was the staphylococci. 3. There were 55 cases of pyuria studied. The majority of the patients were 6 months old or younger and were females. Generally, associated infections were present. The symptoms were pallor, fever, loss of weight, and vomiting. Dehydration was present in 20% of the cases. The most frequent agents were the Escherichia coli and Proteus organisms. The period of recovery was long, and there seemed to be a relationship between the therapeutic success and the intensity of dystrophy of the infant. 4. In 150 cases of bronchopneumonia a clinical analysis and a post-therapeutic evaluation after the administration of sulfa and/or penicillin were made. Here a close relationship was found between the obtained results, the degree of undernourishment, and the presence of associated infections. In approximately 50% of the cases dyspnea disappeared and the temperature became normal before the fifth day; the regression of the physical and radiological findings was slower.

The authors concluded that association of various infections is frequent in undernourished infants, that the symptoms persist for a long time in spite of the administration of antibiotics, and that frequently the infectious process is the cause of severe dehydration. With great frequency one finds in the undernourished infant, during hospitalization, episodes of diarrhea. This is more frequent during the first month, in spite of the diet and the antibiotics. After the fifth to sixth week it decreases but does not disappear completely, persisting in about 10% of the cases.

The immunologic tests performed in 101 of the undernourished infants studied showed that, in comparison with a similar control group, both the initial and the secondary responses to antigenic stimuli and to complement agglutinin capacity tests were less than those of the control group. Regarding dietetic measures, the authors concerned themselves only with milk regimens. The greater relative amounts of milk were given to infants of under 3 months of age; dried buttermilk ("eledon") was preferred during the first six weeks, and human milk or protein milk was used with less frequency. The change from one of these modified milks to cow's milk was done earlier in the older infants. During the first three months an average of 130 to 160 calories per kilogram of body weight per 24 hours was administered, and during the fourth month 80 to 110 calories per kilogram was given. The authors established a relationship between smaller weight gains and fewer calories administered. A general tendency to give a larger supply of calories in relation to the true weight of those infants with lower weights was noticeable. Carbohydrates were administered between 15 and 25 gm. per kilogram of body weight per day, and fat was given in amounts of 3 gm. per kilogram of body weight per day. This low value can be explained by the prolonged use of modified milks and also because only in exceptional cases were the caloric demands met with supplementary fat feedings. The protein supply was satisfactory; however, the younger infants proportionally received more protein than the older infants. There was no parallelism between larger amounts of protein received and satisfactory weight gains. In order to study the effect of proteins in the undernourished infants, the authors studied the nitrogen balance in 22 patients in a recuperative phase. They found that a decrease in the amount of intestinal absorption of nitrogen existed in the undernourished infants. The authors showed that nitrogen retention depends directly on the amount of nitrogen in the food and that within equal limits of nitrogen absorption the amounts retained are the same in the normal as in the undernourished infants. The

The items in these letters are contributed by regular correspondents in the various foreign countries.

increase of the caloric value of the diet was not followed by a necessary increase of nitrogen retention. They also pointed out that there is no relationship between the gain in weight and the nitrogen retention of the malnourished infant, as they frequently observed excellent nitrogen retention values with no corresponding weight gains.

As complementary therapeutic measures they used antibiotics, plasmatherapy, and vitamin supplements. To modify anemic conditions of the malnourished infants vitamin B_{12} was given, producing a very satisfactory response in 75% of the cases. The administration of testosterone to 18 patients gave a satisfactory clinical response in 50% of the cases. The authors mentioned the difficulty in judging the effects of certain treatments in the reparation of the malnourished infants, as the course of malnutrition has many aspects and in the interpretation of the results one must always allow a margin for those cases that have a spontaneous evolution.

New Colloids for Flocculation Tests.—Investigations performed by Dr. J. Cabello, of the department of hepatology of Prof. Rodolfo Armas Cruz Medical Clinic, revealed that identical results can be obtained with the use of colloidal substances other than colloidal red and gold, substances which possess the same physicochemical properties as the other two. Adequate colloids are electronegative and, in order to reveal abnormalities of the protein constitution of the blood serum, must possess a relative equivalency with regard to the magnitude and density of their electric charges and the dimension of their micelles. Empirical tests performed in a laboratory showed that several other electronegative colloids have the same properties as those of colloidal gold and red. Among these colloids are: benzoin, gamboge, colloidal silver chloride, colloidal carbon, and Poirrier's blue. They have been used according to the same technique as advised by MacLagan for the use of colloidal gold; however, in the case of colloidal carbon and Poirrier's blue, it was found necessary, in order to regulate the sensitivity, to increase the quantity of blood serum used. These colloids were tested in 567 samples of blood serum of 57 normal subjects and in 517 patients, mainly with hepatobiliary disease, and showed to have practically the same value as colloidal gold and red. These new colloids are easily and quickly prepared and can be kept for months without suffering any change in their properties.

DENMARK

Criminal Abortions in General Practice.—When a general practitioner keeps a detailed running record of his day's work he may in time present a scientific study that can well compare with hospital work by specialists. These reflections are prompted by a recent article in the medical press, in which Dr. Jens V. Dahlerup records his observations over a four year period beginning in 1948, when he returned to general practice. He kept notes not only of the patients he treated but also of the many persons, 261 in all, who left him without being examined after he had intimated that he would not induce abortion if they were pregnant. Of the 164 women who were found on examination to be pregnant, 84 were unmarried. Among these 164, for the most part healthy women, there were only 35 who expressed pleasure at the prospect of motherhood. Of the 48 expectant mothers who did not go to term, only 5 succeeded in obtaining abortion under legal conditions because there were justifiable reasons for ending their pregnancies. All the other 43 achieved their aim by illegal abortion, either with the help of certain physicians, "professional" abortionists, or by themselves. Among these 43 women there were 27 who were treated at home all the time and who thus did not figure in any official hospital list. One of Dr. Dahlerup's most important conclusions is that more abortions are treated at home than in hospital. This means that hospital statistics give an incomplete picture of the true state of affairs. To be sure, a hospital physician has calculated that only about 20% of all abortions occur outside hospitals, but hospital physicians are not as familiar as general practitioners with regard to what happens in patients' homes. Dr. Dahlerup's records were so conscientious that he was able to publish a detailed list of all the gifts he was offered for his services.

ITALY

Cardiology Convention.—The 14th convention of the Italian Society of Cardiology was held in Taormina under the chairmanship of Professor Condorelli, director of the University of Rome Institute of Medical Pathology. Among many others present was Professor van Dooren, from Brussels, who represented the European Society of Cardiology. The subject of discussion was "Biochemistry of the Myocardium and Its Physiopathological Reflexes," and the speakers were Professor Lenzi, from the University of Siena, and Professors Poppi and Posteli, from the University of Bologna.

Professor Lenzi demonstrated that the contractile function of the myocardium is identified with the ability of each one of its muscular elements to contract abruptly. At present, an almost complete explanation has been obtained for the various phases of the degradation of the energetic material (carbohydrates) and for the mechanism of the liberation of the chemical energy it contains. On the other hand, the way in which, at a certain moment, the actual energy is transformed into contraction has not been explained.

Of great interest in the biochemistry of the myocardium is the role played by the electrolytes as factors activating or inhibiting the enzymatic processes of the intermediate metabolism and as elements capable of participating and perhaps intervening as determining factors in the contraction of the myocardial fibers. This leads to a consideration of the electrolytes as the link between the potential energy of the myocardial fiber and its contraction.

On the basis of his own experiments, Professor Lenzi believes that the condition of the electrolytes between the cell and the extracellular environment is characterized by a peculiar opposition of ionic concentrations. The ratio between the intracellular and the extracellular concentrations of the cations of potassium and sodium constitutes a constant that the organism attempts in every way to maintain. The contractile function is accompanied by changes of potassium and sodium concentrations, i. e., by decreases of intracellular potassium and increases of intracellular sodium. When the myocardial fiber is impaired it has a lowered potassium content and a higher sodium content; the increased work caused by cardiokinetics produces an increase of potassium in the returning coronary blood, and the myocardial fiber receives less of it.

The action of some substances that are called sensitizers with regard to potassium, such as veratrine, and that of other substances of the same type as local anesthetics may be considered the consequence of an opposite influence that these substances have on the ionic exchanges.

Professor Lenzi states that when the normal ratio between the intracellular and extracellular concentrations or the exchange of ions is altered the contractile function is also altered. The initial pathogenic time of these disturbances may be recognized in disturbances of the cell protoplasm, in alterations of the electrolytic humoral equilibrium, or in conditions that disturb the normal exchange of ions with a specific membrane action.

Enzymes, Vitamins, and Hormones.—The second paper, on the enzymes, vitamins, and hormones that participate in the metabolism and, therefore, in the activity of the myocardium, was read by Professor Poppi. The latest studies on the particular metabolic processes of the myocardium have revealed the great importance for the normal function of the cardiac syncytium of some enzymatic systems, especially those connected with cytochromes and with the utilization of the so-called vectors of phosphatic chains with high potential energy. Also of special importance is the normal balance of those vitamins and hormones that interfere in various ways with the enzyme functions.

Professor Poppi examined the principal physiopathological ideas that are useful for the treatment of human illness. Speaking of hypovitaminosis and hormone imbalances that may impair the cardiac activity, he emphasized the so-called beriberi heart described by Wenckebach and the myocardial disturbances that are seen in pellagra. The hormonal imbalances that influence most directly the cardiac activity are hyperthyroidism, hypothyroidism, and hypoadrenalism. On the basis of theoretical premises and of experimental and clinical results, the therapeutic value of vitamins, hormones, and enzymes in

basal or adjuvant therapy of myocardial insufficiency should be recognized. Of great importance among these substances are cytochrome, co-carboxylase, and adenosine triphosphate (ATP).

Diagnostic and Therapeutic Problems.—Professor Posteli read the third report, concerning diagnostic problems. The modern physician aims at an early diagnosis of the myocardial impairment before signs of circulatory insufficiency appear. Therefore, the clinical concept of a chronic disease of the myocardium must not be confused with that of incipient decompensation but must be distinguished by recognizing the morbid conditions, almost entirely functional, that are the precursors of this condition.

From the modern concepts of functional biochemical physiology and pathology, the opportunity arises of introducing in treatment of myocardial insufficiency, especially that with a tendency to metabolism alterations, substances with specific functions that help to avoid the damage caused by alterations of the enzymatic equilibrium in the metabolic cycle of the myocardial muscle.

Great importance for the clinical evaluation of the myocardial impairment is attributed to hypertrophy of the myocardium, with secondary chronic oligemia of the heart. The extent of the clinical impairment rests on the degree and the progression of the hypertrophy. Professor Posteli described the various types of myocardial diseases due to altered metabolism by dividing them into the following groups: those of endocrinal origin, those due to vitamin deficiency, and those due to altered electrolytic equilibrium, allergies, and hypoxia.

When there is an energetic-dynamic insufficiency of the myocardium there are almost always disturbances of the intermediate metabolism of carbohydrates and a primary weakness of the heart muscle due to hyposystole caused by an altered metabolism. The study of the biochemical equilibrium (proteins, lipids, glycides, hormones, vitamins, and electrolysis) of each patient is very important in treatment. The liver always remains the central organ of the biochemistry of heart patients, and the pathological cardiohepatic repercussions within the viscera may find an explanation in the "biohumoral" substratum of the patient that appears more and more important for the interpretation of some cardiohepatic, angina, or hyposystole syndromes in general.

An interesting discussion by many Italian and foreign physicians followed these three reports. The next convention of the Italian Society of Cardiology will be held in 1953 in a city of central Italy, probably Viareggio.

Problem of Keloids.—At the convention of plastic surgery recently held in Bologna, Professor Comel read a paper on the problem of keloids, which develop when some factor has impaired the dermoepidermic structure. This factor may be an exogenous stimulus, such as surgical trauma, burns, and chemicals, or an endogenous stimulus, such as the presence of papules, boils, and pustules. The keloid always has the same structure and form no matter what the stimulus was; it forms within a definite period of time, persists indefinitely, and does not regress. The main characteristic of the keloid is the heteromorphosis of the secondary pathological focus with regard to the original skin lesion; this proves that a factor other than those proper to the focus intervenes in causing the onset of the keloid.

The formation of the focus of a keloid is a characteristic process of hyperplasia of the fundamental dermic connective tissue that takes place under peculiar aspects. There is a renewal of cellular activity so that the tissue resumes the characteristic of the young type of connective tissue, with a transitory metaplasia and a return to active proliferation. The new bundle of fibrils has an excess number of nuclei. There is, therefore, a condition of excess vitality of the collagen with a transitory restoration of the characteristics that are proper to the first mesenchyma.

The keloid focus is distinguished, histologically, in a definite way from the surrounding connective tissue; it is almost like a unit by itself, constituted of delicate and well-arranged bundles of young connective tissue with numerous nuclei. The keloid is histologically a true fibroma, which is differentiated from neoplasms only because proliferation stops at a definite time. After this period of growth of the connective tissue, the phenomena of maturity of the newly formed tissue occur and this tissue assumes the characteristics of mature connective tissue with a decrease of the nuclei of the fibroblasts and thickening of the collagen fibers. In addition to being a hyperplastic proliferation in time, the keloid is also a hyperplastic proliferation in location; in fact, the new exuberant formation of tissue remains faithfully within the boundaries defined by the place of action of the primary stimulus and does not have a tendency to spread.

Several hypotheses are being advanced to explain the pathogenesis of keloids. In general, a lack of factors that inhibit the normal hyperplastic enzymatic activation secondary to the skin lesion is admitted. These inhibiting factors in the blood stream are of hormone type. The growth of the keloid stops at a definite moment for the reason that a balance has been established either because the hyperplastic connective tissue has changed into a substratum insensitive to the enzymatic factors, a general regulating action of enzymes prevails, or other enzymes intervened as topical regulating factors. In addition to the constitutional hormonal factors, the biochemical constitution of the connective tissue also has importance. Therefore, the fact that the formation of a keloid is connected with the person's constitution, especially with regard to humoral and hormonal factors, should be considered.

LONDON

Annual Report of the Ministry of Health.—The report of the Ministry of Health for the period, April 1, 1950, to Dec. 31, 1951, has been published. The gross cost of the National Health Service in 1950-1951 was £398,279,153, compared with £387,587,243 in 1949-1950 and £241,439,787 in the first nine months of the service (July, 1948, to March, 1949). The estimated gross expenditure for 1951-1952 is £417,384,700. The number of available hospital beds rose from 448,057 in 1949 to 461,892 in 1951. The number of inpatients in these two years was 2,936,980 and 3,259,214, and the number of new outpatients was 6,147,825 and 6,298,746. Full-time nursing and midwifery staffs increased from 125,752 in 1949 to 136,210 in 1951; the comparable numbers for part-time staffs were 23,060 and 25,756. Full-time consultants rose in number from 1,310 in 1949 to 1,605 in 1951, the comparable numbers for their part-time colleagues being 23,060 and 25,756.

It is reported that "the relations of hospitals with the public have been reassuring and have fully justified the administration of the hospital service by boards and committees composed of voluntary workers . . . hospitals benefit from a wide range of voluntary help from local branches of the national voluntary organizations. Gifts and legacies increased from £1,700,000 in 1949/50 to about £3,000,000 in 1950/51 and helped materially to provide all kinds of amenities which could not otherwise have been provided from restricted budgets." On the inauguration of the National Health Service all existing endowments of nonteaching voluntary hospitals were transferred to the Minister of Health to constitute a central hospital endowment fund. This fund totals £20,000,000. The income of the fund is distributed to regional boards and hospital management committees "for use at discretion on purposes relating to the hospital service, or research, and is mainly applied to amenities for patients and staff beyond the provisions made by the State." The amount distributed in both 1950 and 1951 was £618,314, which represented a payment at the rate of 26s. per bed. In addition to these payments, all hospital authorities are empowered by the act to accept gifts and legacies for hospital purposes under either general or specific trusts.

The number of physicians in general practice has increased; on Dec. 31, 1951, the number of persons providing general medical assistance as proposed under the service was about 18,000, but it is stated, "some doctors seem to be encountering difficulty in securing a practice of their own." The number of persons on physicians' lists on Jan. 1, 1952, was 43,189,599, compared with 42,201,811 on Jan. 1, 1950. These figures, it is pointed out, "contain an element of inflation." The following excerpts from the section of the report dealing with general practice are of interest: "Reports of a large number of visits made to practitioners by members of the regional medical service have provided a basis for some better appreciation of general practice as affected by the National Health Service. From these reports there emerges a general impression of increasing satisfaction with improve-

ments which are taking place, despite inevitable complaints about some administrative matters. . . . The reports show that surgery attendances continue at a high level. The experience of many doctors is also that the appreciable seasonal remission in attendances is much less marked than before the start of the Health Service. A very general complaint relates to the number of patients who attend with trivial ailments. . . . Few complaints were seen of difficulty in securing hospital admission for patients who are acutely ill." Just over 1,000 applications were received from general practitioners for refresher courses, of which less than 60 were rejected as not being eligible. About half the applications were for short week-end courses.

Some statistics on surgical appliances and the like may be of general interest. In the 21 months covered by the report, 1,032,262 new surgical and medical appliances were supplied, including 81,166 new pairs of surgical footwear, 212,490 abdominal supports, 82,367 other surgical belts, 48,004 leg appliances, and 19,483 wigs. In conjunction with the Ministry of Pensions, 23,947 artificial limbs, 17,104 invalid chairs, and 13,727 artificial eyes were supplied. Production of hearing aids reached a new high level: 106,000 in the period covered by the report, in addition to over 8,000 nonelectrical aids. The waiting list for hearing aids at the end of February, 1952, was 94,000. There was a sharp drop in the demand for spectacles after charges amounting to roughly half the cost were imposed on May 21, 1951. Between April 1, 1950, and May 20, 1951, sight tests were given at the rate of about 5 million a year and spectacles were supplied at an annual rate of about 7,500,000. Between May 21, 1951, and Dec. 31, 1951, sight tests dropped to a rate of 3,200,000 a year, and from July 1, 1951, to Dec. 31, 1951, spectacles were supplied at an annual rate of about 3,300,000. Following the introduction of charges for dentures in May, 1951, there was a substantial reduction in the demand for dentures but "the demands for conservative treatment continued to increase gradually." The average cost to public funds of a course of treatment fell from a peak of £5.16s. to £2.14s. at the end of 1951.

The number and cost of prescriptions increased steadily. In 1950, 217,144,505 prescriptions were dispensed at a total cost of £34,804,535. In 1951 the number of prescriptions was 228,585,022. The average cost per prescription rose from 3s.1d. at the beginning of 1950 to 3s.11d. at the end of 1951. "Contributory factors to the increase would seem to have been the introduction of chloramphenicol into general practice, the increased prescription of other expensive drugs and the increased price of certain drugs and dressings." (In this connection it is interesting to note that, following the introduction in May, 1952, of a levy of 1s. per prescription payable by the patient, the number of prescriptions has fallen. Figures just released show that prescriptions in August show a decrease of 6.64% when compared with those in August, 1951.)

A reassuring feature of the report is the long overdue increase in the number of vaccinations against smallpox: from 221,784 in 1949 to 406,960 in 1951. Up to the end of 1951 about 45,000 persons have received BCG vaccination since the start of the service. In 1951, 589,429 children were immunized against diphtheria. On the subject of pertussis vaccination it is stated that "it has not been considered expedient, as yet, to promote a general campaign for this type of inoculation similar to that concerning diphtheria immunization, but so far as individual local health authorities, with the advice of their Medical Officers of Health, have submitted to the Minister acceptable proposals to include facilities for whooping-cough in their arrangements under Section 26 of the National Health Service Act, 1946, these have been approved." So far, 76 authorities have received this approval.

Supply of Nurses.—The 55th annual report of the King Edward's Hospital Fund for London, covering 1951, has some interesting data on the present position of recruitment of nurses. On Sept. 30, 1951, there were 158,822 full-time nurses employed in the hospitals of Great Britain, compared with 129,507 in 1947. The total number of student nurses included in these figures was 58,270 in 1951 and 46,655 in 1947. Around 1947 most of the increased numbers recruited were absorbed into the hospitals to make possible a reduction of hours and allowance of time for study, thus involving a higher ratio of staff to beds. In 1950 and 1951, however, there was an increase of 21,839 in the total of staffed beds available in this country. Attention is drawn to the fact that there are 100,000 fewer girls reaching the age of 18 each year than in 1939, and there are over a million more women employed than before World War II. In other words, "against the fierce competition from all the occupations open to women, and from a greatly diminished field of recruitment, the nursing profession has increased its active membership by 50% since the pre-war years." A total of over 58,000 student nurses is probably the highest in the world in relation to population. In the United States, for instance, it is reported that, with a population three times the size of Great Britain, in 1951 there were only 102,500 student nurses and since 1939 the increase in student nurses has only been around 14%, compared with 33%. On the other hand, there are signs that the peak of recruitment has been passed. In addition, there are grave shortages in certain branches of nursing, e. g., mental hospitals, tuberculosis sanatoriums, and hospitals for the chronically sick. The situation is not likely to be eased by the official rule, coming into force on Aug. 1, fixing the minimum age of entry to training for student nurses at 18 years. This is already the recognized age in many hospitals, but as a carefully reasoned, if somewhat critical, article by the medical correspondent of *The Times* points out, "the longer the gap [between leaving school and entering nursing] the greater the loss, and not every girl attains just the right maturity on her eighteenth birthday. She may get there earlier."

The Welfare State.—Under the title "The Welfare State," *The Manchester Guardian,* one of the most respected and unbiased newspapers in this country, recently published an editorial that epitomizes a problem that has been worrying many of the more thoughtful members of the profession. A respondent in a Lancashire police court stated that he had given up his job as an engineering laborer at £5.16s. a week rather than pay something to the local authority for the upkeep of his illegitimate child. He had reckoned that if he paid a contribution of 20s. he would be worse off than if he went "on the dole." This he had done and was receiving, without working, £7 a week, £5 from National Assistance and £2 from children's allowances (he had six other children). In other words, he had 4s. more than he would have if he had paid for his illegimate child. The magistrate ordered him to pay 10s. a week, which gave him the incentive of 6s. to work. This left the local authority with the problem of finding £2.10s. to support the child. *The Manchester Guardian's* comments are as follows: "The case raises some pretty problems. How does it come to be so easy to draw National Assistance when a man deliberately throws himself out of work? Does the State owe such a man and his family a living? If a man has no sense of social obligation must he and his be supported, without deterrent measures, at the public charge? Or is it too old-fashioned to ask such questions?" There are many members of the medical profession in this country, including a considerable number of those who are loyally striving to make the National Health Service a success, who consider that it is the average politician's refusal to appreciate the inherent incompatibilities between human nature and the socialist welfare state that is responsible for many of the defects of the present service.

Blindness in West Africa.—Under the aegis of the British Empire Society for the Blind, a three year survey of the causes of blindness in West Africa is to be initiated this fall. The survey, which is said to be the most extensive ever undertaken in the British colonial empire, is to be made by Dr. Frederick Rodger, an ophthalmologist, and Mr. Geoffrey Crisp, an entomologist. The survey will start in the northern territories of the Gold Coast, where "river blindness" is rife and constitutes an urgent problem. The cost of the survey, which is being met entirely by the society, is estimated to be between £25,000 and £30,000.

Survey of Children's Feet.—A considerable amount of publicity has been given to a survey of children's feet carried out by the Somerset County Education Department. This showed that of 1,800 children whose footwear was examined only 27% were wearing the correct size, and 60% were wearing shoes between a half and two and a half sizes too small, while 13% had footwear between a half and two sizes too large. The means of dealing with this problem are to be discussed by the local county medical officers with orthopedic specialists, and subsequently the cooperation of parents will be sought.

CORRESPONDENCE

THE PRESIDENT'S COMMISSION ON THE HEALTH NEEDS OF THE NATION

To the Editor:—Recently I delivered before the 23rd Annual Scientific Assembly of the Medical Society of the District of Columbia a paper entitled "Mental Processes of the President's Health Commission," which will be published in full in the December issue of that organization's *Medical Annals*. Since I have often been asked why I accepted the chairmanship of the Health Commission, the following excerpts from that paper may be of interest to the medical profession generally.

"When the President of the United States called me in last November and asked me to head a Commission to get at the facts involved in the whole health issue, neither he nor I did any pussyfooting. I told the President that I was unalterably opposed to compulsory health insurance, and that I would never be a party to any scheme designed to further such a plan. The President replied that he had made it his business to study my record, and he had called me in for the very reason that he thought I wore no man's collar. The President said he had made certain proposals to bring more and better medical care to the people, but these proposals had precipitated an emotional argument which had clouded the issue. The President said he was not necessarily committed to any one plan—if any group could come up with a better series of proposals than the ones he advocated, he would be the first to support them if they would insure better health for all the people.

"I deliberated for a long, hard week before accepting the assignment. I talked to many of the leaders of American medicine, including the then President of the American Medical Association, the current President of the American Medical Association, and several members of the Board of Trustees. At the week's end, I decided I had no choice but to accept the assignment. Although I disagreed with many of the policies of the President, I felt I had a bounden duty as a citizen to do all I could to help in furthering an investigation into the real facts of medical care in this country. I also felt a bounden duty as a doctor to participate in a mission freighted with so much import to American medicine.

"From the bottom of my heart I want to say this to you doctors assembled here, and to every doctor in this country: It is our plain and simple duty as doctors to furnish leadership in every national, state, and community effort to look into ways of improving health conditions in America. If we abdicate this responsibility; if like Marie Antoinette we say, 'Let them eat cake,' then other elements in our society will take over and we will find ourselves under a distasteful system of medical care.

"Having accepted the chairmanship, I was given an absolutely free hand in the selection of the fourteen members of the Commission. The President made but one suggestion to me—that I not confine its membership just to the medical profession. He said this was a problem which reached to the very core of American life, and that I draw the finest kind of representation from the labor, farm, industrial, consumer, educational, and allied areas which had a deep interest in better health for more people. This I conscientiously tried to do. In the six weeks before the formal appointment of the Commission, I pored over list after list of prominent Americans before choosing those I thought most independent in their thinking. . . .

"When the fifteen of us sat down at our first meeting here in Washington this past January, we had a few dark moments. The Presidential directive requested us to make a critical study of the nation's total health requirements, both immediate and long-range, and to recommend courses of action to meet these needs. We were asked to look into the current and prospective supply of doctors, dentists, nurses, and allied personnel; the adequacy of local public health units; the problem of accelerating medical research; the thorny and controversial question of how to finance medical care, and, finally, to make some recommendations as to the desirable levels of governmental expenditures in the total provision of medical care.

"We drew up a blueprint of action at that first meeting, and we have followed it very closely since. We decided, first of all, that we would have to assess the total health resources of the country. A staff of technicians has been working on this for the past nine months—digging into the complexities of number of health personnel, hospital beds, health insurance coverage, health education facilities, costs of medical care, and so on. To give you an idea of the scope and comprehensiveness of their work, just for the three-day panel in October on the financing of medical care, they have produced a 125-page basic fact book for use of the Commissioners in their deliberations.

"The second phase of the working plan, estimating the health needs of the American people, has been the toughest part of the job. We decided at the very beginning that we couldn't do this alone—we would have to call upon the best medical and lay experts in the country to help us. So we scheduled a series of 30 all-day panels in Washington on every imaginable phase of medical care. We have had panels on everything from general practice and the financing of medical education to rural health and care of the chronically ill. Each of these panels is an all-day, give-and-take session between the dozen or so people we call in to bat the problem around. In more than 40 years of attending medical conventions and seminars, I have never seen and heard nothing to approach these panels in free-swinging, democratic discussion of the problems at hand. All of us on the Commission owe a tremendous debt of gratitude to the many national medical, labor, farm, industrial, consumer, and educational organizations who have sent us their top people for these panels.

"Now we've gone a step beyond these individual panels, and that has been a tremendous amount of additional work for the Commissioners and for the staff. We have had drawn up summary documents of each of the panel subjects, and circulated them to everyone who participated in these panels. We have asked for, and received, some sharp, incisive comments. We never claimed that these panel digests were either perfect or final—they were rough, first drafts. We have, at all times, been completely fair, open and above board in all of our dealings with these panel participants, and I deeply resent uninformed criticism which implies the contrary.

"Finally, in addition to its regular meetings, the full Commission has come together once a month for a two-day session at which two or three participants from each of the panels held the previous month come together for a summary of their findings and extensive questioning by the Commissioners. These are again free-wheeling sessions at which members of the various panels lock horns with one another and are, in turn, subjected to some mighty sharp questioning from the Commissioners. No attempt is ever made to suppress any point of view or frank expression of opinion. For example, at the last joint panel held in August which covered medical care, military medicine, public medical programs and hospitals, there was a hot and heavy discussion of the current shortage of clinical teaching beds for medical education. Out of this highly informed discussion there came a new understanding of the seriousness of the problem, and I think the newspaper stories on that meeting were a vital contribution to better public understanding of the problem. We have nothing to hide.

"Now, having done all this fact-finding on the banks of the Potomac, we felt we ought to go out to the grass roots and sound the pulse of the people on the big medical questions of the day. So we scheduled a series of eight hearings across the country. We invited anyone who wanted to come in to sound off at these hearings—we refused to set up a prescribed agenda or a restricted list of either witnesses or topics.

"Will we succeed in our gigantic task? I can only repeat what I told the National Association of Science Writers in June—that I think the report will be a powerfully annotated, realistic, honest and fresh approach to the vast problem of providing better medical care for all the people."

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The President's Commission
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NOTE.—*Reference to the President's Commission on the Health Needs of the Nation has been made on many occasions in* THE JOURNAL, *for which see Washington News, June 28, Oct. 18, and Oct. 25, 1952, and the President's Page, Jan. 19, 1952.* —ED.

BRONCHIAL ASTHMA

To the Editor:—The articles on bronchial asthma by Drs. Unger and Abramson that appeared in the Oct. 11, 1952, issue of THE JOURNAL were excellent. Emphasis must be placed repeatedly on the danger of using morphine in asthma, as it so often is a cause of death in status asthmaticus. This applies to other strong respiratory depressants, like meperidine hydrochloride.

I should like to add a suggestion for the prevention of what I call "nasal-descending asthma," a condition frequently following "head colds," which may provoke, especially in children, acute exacerbations of the severest type. I classify this into two forms, one in which severe asthma follows the nasal symptoms after minutes to hours and the other in which the severe chest symptoms occur after one or two days. The use of epinephrine in oil as Dr. Unger suggests is good for the first type, the more rapidly developing form. However, for the second type, we use at my hospital in addition a penicillin sulfonamide compound, or if allergy to penicillin exists, aureomycin.

One of our hospital staff, who frequently suffered from the second type of descension, has aborted the condition by taking two capsules of aureomycin at the start of nasal symptoms, then one capsule every four hours for three days.

It is apparent that anything we can do to prevent the bronchial flare-up is very valuable in avoiding a train of alarming symptoms, often mistreated and overtreated.

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THE FUTURE OF OTOLARYNGOLOGY

To the Editor:—In THE JOURNAL, April 26, 1952, page 1508, appeared an editorial on the future of otolaryngology, which emphasized that otolaryngology is a "shrinking surgical specialty"; that there is no such thing as the "uncontested domain of otolaryngology." I have practiced medicine for 40 years, during 25 of which the measures I used were strictly orthodox, just as I was taught. During that quarter of a century I viewed each patient as a candidate for surgery of some sort and my thinking stopped just there. Many well-meaning, sincere otolaryngologists today stop thinking just there. This is crucial to our specialty and must be radically changed if we are to advance or even survive.

Fifteen years ago I kept for months a daily tabulation of my patients, under four headings: (1) those I really helped, (2) those for whom I did little to relieve their troubles, (3) those for whom nothing could be done, and (4) those who were made worse by surgery, especially by intranasal and sinus surgery. I found far too many patients in the last three classifications. This illustrates the inadequacy of our knowledge.

I thoroughly agree with the editorial that the conventional fields of otolaryngology no longer exist. I also agree that the potentialities for reseach are limitless. This research should not, however, necessarily be carried out entirely in large laboratories with generous endowments for grants in aid, as suggested by the editorial. Clinical research can be carried on successfully in the quiet home study, in the medical library, in the hospital, or even in private offices, if the physician is willing to put his head and heart into the work. What enormous problems we still have to conquer! To mention but a few, there are deafness, tinnitis, vertigo, allergy, dysfunction of the autonomic nervous system producing painful head and neck syndromes, nutrition, and biochemistry as it effects our specialty.

I cannot agree with those who believe only what they think they can prove in a lower species of animal or see under a microscope. Not all great discoveries in medicine have come from large, heavily endowed institutions. Even clinical observations still rank high in medical advancement. During my 40 years on the faculty of the University of Kansas, I took pride in the ability of my interns and residents to do a satisfactory tonsillectomy and adenoidectomy. It was seldom that our interns on a rotating three months' service failed to have the opportunity to perform at least 20 tonsillectomies under direct supervision. If, as Dean Lierle (*Ann. Otol. & Laryng.* **59**:496 [June] 1950) found, an average of 22% of the general physicians' work during September to June was in otolaryngology and sometimes as high as 80%, it behooves us as teachers to see that they are well trained. It is economically unsound and often physically impossible for patients to travel hundreds of miles for relatively simple otolaryngological procedures.

If I had bronchogenic cancer, I would much prefer that my thoracic surgeon, if qualified, visualize and localize the lesion through the bronchoscope before he removed my lung. If this be encroachment, then encroachment is to the patient's best interest. The allergist does not compete with us. We must be adequately trained as allergists and compete with him. We are trained to completely visualize the true pathological process; he is not. Witness the number of neoplasms varying from simple polypoid growths to malignant growths that are overlooked and treated as allergies without regard to obvious gross lesions. Competition is never harmful, especially when skills are competing.

To solve the problem I propose that two types of schools be established for graduate teaching of otolaryngology: first, a graduate school to teach those who want to go into the private practice of otolaryngology (this course would include more than 95% of the novitiates) and, second, a graduate school to train only those who can qualify in research, in culture, in intellect, in perserverance, in skills, and who have an unquenchable determination to teach and carry on research in universities and colleges. These men should be the "composite paragons," without rival in excellence, referred to in the editorial.

The course for the first group who want to practice good otolaryngology to serve faithfully and well the smaller communities of the United States as described by Richards in the editorial should continue not more than three years after the rotating internship. These three years should also be rotating. Not more than one-half of the total time should be devoted exclusively to otolaryngology. The other half should be devoted to physiology, especially neurovascular physiology; neurology, especially the study of the autonomic nervous system; applied biochemistry; and nutrition and allergy. He should be required to attend all medical conferences. The need is not for more men to do such operations as fenestrations, complete block dissections of the neck, and facial nerve decompressions but for more thoroughly trained men who can really serve the public's greatest need in otolaryngology; that of those patients with obvious neurovascular dysfunctions and allied conditions about the head and the neck. They are nearly completely neglected by us at this time, and they really need help. These patients with beginning acoustic nerve changes are seldom treated thoroughly, because we have accepted, in our teaching, the futility of our therapy. The neurologist is frequently called to treat diseases of the vestibular branch of the eighth nerve, which is certainly within our domain. The neurologist is called to treat the painful head and neck symptoms because the otolaryngologists have not been schooled in the neurophysiology and dysfunctions of the autonomic nervous system. They regard the hypothalamus as a mythical area in the brain; they probably have forgotten that the hypothalamus controls all the rhythmic contractions and dilatations of the heart and blood vessels. They probably all know that dilated blood vessels pull desperately on the surrounding nerves and produce excruciating pain.

If the otolaryngologist would always remember that he is first of all a physician; if he had a rigid preparatory training in such fields as neurovascular physiology, biochemistry, nutrition, and allergy, he would immediately know that something constructive, something helpful—even though not always curative—could be done for the multitudes of patients who come to him for relief. Certainly the men in the smaller communities to whom Dr. Richards sent the questionnaires would seldom find it necessary to do a block dissection of the neck. Any surgeon who operates only occasionally could not possibly do the operations skillfully. These patients should be referred to a large medical center. The same is true of fenestration. Otolaryngologists refer certain problem cases to me for help. I, in turn, refer some of mine to others. This is not a face-saving device; it is just basic unimpeachable honesty. Nearly all of our men finishing residencies in the last 10 years have gone on to New York or Chicago to perfect their surgical technique in fenestration. The training in regional anatomy and pathology has been well worth the time and expense. Few of these men, however, do a good fenestration operation for otosclerosis. This should be done only in the larger medical centers and there only by the few who are specially trained and have had a sufficient volume of operations to develop and maintain a masterly technique.

We are in this "dilemma" the editorial described for one and only one reason: faulty graduate teaching. If the men who have been in our graduate schools during the last 15 or 20 years had been effectively and formally educated in the allied sciences they would not now be tenaciously grasping for more and more surgical work. They would be in the commanding and envious position of being able to alleviate tremendously, and sometimes cure, diseases that had been bewildering and obscure to earlier otolaryngologists.

Otolaryngology is still taught as a wholly surgical specialty even after 17 years of chemotherapy and nearly 10 years of antibiotics. My practice at present is 80% medical and 20% surgical.

The future of otolaryngology depends on a much to be desired change in our graduate teaching. Until this can be accomplished, there will necessarily be a void in our teaching program. This vacuity can be filled by those of us who would, and should, be willing to take these men with us on a preceptorship basis.

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HOSPITAL CARE COSTS

To the Editor:—The editorial in the Oct. 18 issue of THE JOURNAL, page 696, entitled "A Cooperative Program to Reduce the Costs of Hospital Care," as well as the letter of Dr. Albert W. Snoke, on page 713, was of great interest to me, and, particularly, the following quotation from the editorial: "Physicians who are concerned about the expenses their patients incur when they are hospitalized do not always appreciate how many elements of the patient's hospital stay that are directly related to the size of his hospital bill are under their complete control."

I have been interested in the problem of overtreatment of trivial skin lesions for a long time. Last spring, during a six week period, 30% of all new patients seen by me in the office and hospital had contact dermatitis. When these patients had recovered sufficiently, patch tests were made with remedies they had used. Twenty-seven per cent of them had applied a skin remedy that worsened their initial condition, and seven of this group required hospitalization for generalized dermatitis. In my experience, some of the agents most likely to cause eczema, e. g., the local anesthetics, are found in skin remedies.

The total cost to seven patients who were hospitalized was $2,000. As one would surmise, insurance companies, particularly Blue Cross, shared most of this burden. The hospital cost averaged 40%, the wages lost by the patients averaged 45%, and the medical fees averaged only 15% of the total cost. This reveals that, while the physician shoulders all the responsibility for caring for these victims, he receives as fees only a small amount of the total expense.

I had one patient who, several years ago, had to be hospitalized for a generalized dermatitis following application of "topaminic" (a mixture of methapyrilene hydrochloride, benzocaine, calamine, and hexylated m-cresol) to a dermatitis on her hand. The "topaminic" produced an oozing, weeping patch test reaction. The label declared this agent would relieve itching and burning and heal a dermatitis. Instead it caused the patient to be hospitalized. This episode cost this patient over $200. She was given instructions in skin care, and last winter she acquired a dermatitis on her hand again. This time it was due to using "Baume ben-gay" (a mixture of menthol, methyl salicylate, lanolin, and a fat). The dermatitis was given proper care, and her only expense was one office treatment.

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TOXICITY OF ARSENIC AS USED IN TREATMENT OF ASTHMA

To the Editor:—In THE JOURNAL, Oct. 11, 1952, are two articles that mention the dangers of the treatment of asthma with inorganic arsenicals (Unger and Unger, page 562, and Silver and Wainman, page 584). In both articles mention is made of a case report in THE JOURNAL by Pascher and Wolf (March 1, 1952, page 734). All three of these articles fail to take notice of a communication by us in the *New York State Journal of Medicine* for Nov. 1, 1951, in which a case is described, a review of the literature is given, and the possible method of action of arsenic in chronic asthma is postulated. Another patient showing arsenic poisoning involving the liver, skin, and peripheral nerves has come under our care, and a patient treated by one of our colleagues had similar toxic effects. We have also heard of a case in which toxic encephalopathy developed in a child following treatment with this medication. We would like to cite the following additional case that has come under our care.

A man, aged 26, had been suffering with severe asthma unresponsive to the usual therapy for the past four years. Two years ago he went to a clinic in Mississippi, at which time he was given medication containing potassium arsenite (Fowler's solution), potassium iodide, tincture of digitalis, saccharin, and elixir of phenobarbital, the dosage of potassium arsenite being approximately 0.2 cc. (3 minims) per teaspoon. Since this was given three or four times a day, the dosage was 0.6 cc. to 0.8 cc. (9 to 12 minims) of potassium arsenite per day. His asthma improved to the extent that he could carry on his usual activities. About two years after starting the medication mentioned above, he found himself becoming jumpy and nervous, with shooting pains down both arms and pain in the epigastrium. He had pain also in the right loin, which was worse when he bent down.

He had lost about 40 lb. (18.1 kg.) in the previous eight months, although he had gained back about 10 lb. (4.5 kg.) of this weight. His appetite was poor, but he felt he had to eat more to recover his weight loss. He had keratosis of the palms and soles and melanosis of the skin consisting of peculiar dark brown freckles, which, however, had an elongated appearance. He had an enlarged tender liver that was palpated about four fingerbreadths below the costal arch. Although he was not visibly jaundiced, his conjunctiva had a muddy appearance. He had weakness of both upper extremities, although no definitive neurological findings.

An occasional specimen of urine showed a specific gravity of 1.011, with a faint trace of occult blood, faint trace of albumin, pus cells 20 to 25 per high power field, and red blood cells 15 to 20 per high power field. A test for urobilinogen in the urine showed a value positive in 1 to 200 dilution. The cephalin flocculation test was negative. The icterus index was 16 units. A 24 hour specimen of urine for arsenic revealed a value of 1.56 mg. in 1,650 cc.

It was felt that this patient had chronic arsenic poisoning due to his intake of potassium arsenite. He was given methionine tablets, 3 gm. daily, and the arsenic medication was stopped. He could not be followed directly, because he had to return to his home in Florida; however, correspondence showed that he

improved as far as his arsenic poisoning was concerned, but his asthma became increasingly difficult to manage.

Dimercaprol (BAL) was not used in the previously observed patients because of a report in the literature that it was not very effective in arsenic poisoning when the liver was involved in the process. One author felt it should be used with great hesitancy in the presence of liver damage due to arsenic (Cornell Conferences on Therapy: *N. Y. State J. Med.* **48:**643, 1948).

Finally, we believe that the toxic action of arsenic as used in the treatment of asthma should be made clear to every physician. There are probably many cases that are not being diagnosed today because of the profession's unfamiliarity with this syndrome. In the words of Sollman ("A Manual of Pharmacology," Philadelphia, W. B. Saunders Co., 1948): "Inorganic arsenic is capricious, unpredictable, and uncontrollable both as to good and harm; but the harm is more certain and generally more frequent than the good."

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BRONCHIECTASIS IN THE ASTHMATIC PATIENT

To the Editor:—The article entitled "Hidden or Unsuspected Bronchiectasis in the Asthmatic Patient" by Drs. Overholt, Walker, and Woods in the Oct. 4, 1952, issue of THE JOURNAL is misleading to the medical profession. Despite Dr. Overholt's richly deserved preeminence as a thoracic surgeon, I must take exception to his criteria for a diagnosis of bronchial asthma from both the internists' and the allergists' viewpoints.

Everyone who wheezes does not have asthma and should not be so labelled. Not one of the patients reported on in this article can be termed asthmatic. Today no one calls bronchogenic carcinoma, inspissated foreign bodies, tuberculous bronchial stenosis, or left heart failure bronchial asthma yet patients with any of these conditions may wheeze and have exertional dyspnea. In the cases reported, however, Dr. Overholt makes the same erroneous diagnosis.

Symptomatic bronchiectasis is rare in my experience of bronchial asthma. In the older age groups many patients who have marked pulmonary emphysema have bronchiectasis, which undoubtedly was their primary disease, and have none of the characteristics of bronchial asthma or other allergic disease. These patients do not respond to antiallergic therapy. This is the group that so many physicians have given the diagnosis of intrinsic or infectious asthma, although the only symptoms they have in common with the asthma patient are wheezing and exertional dyspnea.

Without emphasis, however, I believe Dr. Overholt makes a very important point, one that has been frequently discussed in local pulmonary conferences. Does segmental pulmonary or bronchial disease reflexly produce generalized pulmonary and bronchial symptoms? All the cases reported in the article give an emphatic affirmative answer to this question! This could be called the "Overholt Pulmonary Syndrome" and be analogous to the Goldblatt kidney in hypertension. I should certainly like to read comments on this by other allergists, internists, and thoracic surgeons.

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To the Editor:—The article by R. H. Overholt, J. H. Walker, and F. M. Woods entitled "Hidden or Unsuspected Bronchiectasis in the Asthmatic Patient" in THE JOURNAL, Oct. 4, 1952, page 438, implies that bronchiectasis in asthma is not uncommon. The lack of distinction between true allergic asthma and other pulmonary diseases manifesting asthmatic wheezing has caused confusion in this, as well as in many other, publications on the subject of asthma.

If we restrict the term asthma—as I believe we should—to cases of allergic asthma, the authors' conclusion does not hold true. It has been clearly shown (Waldbott, Kaufman, and Merkle: Bronchiectasis in Asthma, *J. Allergy* **21:**339-343 [July] 1950) that irreversible bronchiectasis in allergic asthma is very rare. The patients reported on by Overholt and associates had pulmonary diseases other than asthma. "Asthma" developed "following a severe respiratory infection" requiring several months' bed rest, "following the aspiration of a peanut" with resulting lung abscess. In none was there mention of positive skin reactions, of eosinophilia, or of a positive allergic personal or family background. This is of vital significance in the management of our patients. We have shown that there is usually a temporary widening of the terminal bronchi in allergic asthma owing to accumulation of thick tenacious mucus. This is reversible. In some of our patients with allergic asthma, competent chest surgeons intended to do a segmental lobectomy; yet the condition cleared up completely without surgery. This should be pointed out to those who are tempted to perform surgery in intractable cases of allergic asthma.

The above consideration does not detract from the main point made by the authors, namely that, in patients with intractable dyspnea and wheezing, a search should be made for causes other than allergy and the proper surgical treatment instituted, if so indicated.

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PATENT DUCTUS ARTERIOSUS

To the Editor:—In THE JOURNAL for Sept 27, page 419, is an editorial on a paper by Rutstein, Nickerson, and Heald concerning the possible relationship between patent ductus arteriosus and maternal rubella. I should like to call attention to the fact that before any such statistical study can be of any significance it must be determined whether or not patent ductus arteriosus as an isolated lesion is in fact a developmental congenital lesion. I have pointed out in a number of articles that it has always been my impression that patent ductus arteriosus is not a developmental abnormality but is simply the result of failure of closure of the ductus when the newborn infant takes its first breath. The extensive studies of Barclay and his group at Oxford and the study of Clark and Kennedy and others support this view. Maternal rubella, and no doubt other infectious diseases, are thought to cause a maldevelopment in the fetus during the first trimester. If, as I contend, patent ductus arteriosus is not a congenital defect, then it can have no relationship to maternal infection. In fact, patent ductus arteriosus should not be considered in the same category with other cardiac congenital abnormalities.

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CARE OF POLIOMYELITIS PATIENT

To the Editor:—In THE JOURNAL of Oct. 11, 1952, page 607, Dr. Leona Baumgartner provides an excellent listing of standards for the care of poliomyelitis respirator patients. There is, I believe, one serious omission. No note is made of provision for continuous suction for removal of secretion from the pharynx. Such secretion may lead to grave anoxia by blocking or spasm if allowed to remain even a few minutes. Even with a tracheotomy, saliva or other fluid may overflow into the trachea owing to loss of the protective function of the larynx.

In my experience no ordinary electrical suction apparatus is adequate for this removal, especially if it is used intermittently. A Venturi type of water suction apparatus or a central vacuum tank connected through a collecting bottle to a nasal catheter with the perforated end lying where secretion accumulates (usually in the hypopharynx) keeps the pharynx clear, prevents overflow and spasm, and allows the patient to rest. This seems to me to be one of the most important points in treatment.

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Postgraduate Continuation Courses for Physicians

Compiled by the Council on Medical Education and Hospitals for the Period Jan. 1, 1953, to July 15, 1953

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Postgraduate Continuation Courses for Physicians—Jan. 1, 1953, to July 15, 1953

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	ALLERGY		
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Six-Month Personal Course in Allergy	1st of every month, full time	$500.00
	One-Month Personal Course in Allergy	1st of every month, full time	200.00
	Personal Course in Allergy and Related Conditions	April 8, ten Wednesdays, part time	125.00
The American College of Allergists, Inc., 401 LaSalle Medical Bldg., Minneapolis, Minn.			
At: The Conrad Hilton, Chicago, Illinois	Graduate Instructional Course in Allergy	April 24-26	40.00
	Ninth Annual Congress American College of Allergists	April 27-29	None
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Arthritis and Allergy for General Physicians	May 11-13, full time	25.00
Columbia University, 630 W. 168th St., New York 32, N. Y.			
At: Mt. Sinai Hospital	Allergy (Medicine PM 36)	January 30-31, part time	20.00
At: Roosevelt Hospital	Clinical Allergy (Medicine PM 81)	May 11-22, full time	120.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Allergy	To be arranged, part time	50.00
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	543-A Allergy	April 17-June 5, part time	40.00
	5415-B Allergy	March 16-27, full time	150.00
	ANATOMY		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Surgical Anatomy: Dissection, Demonstration, and Lectures	September 29-June 3, part time	250.00
	Surgical Anatomy: Demonstrations and Lectures	October 1-June 3, part time	100.00
San Diego County Hospital and Mercy Hospital, San Diego, Calif.	Anatomy	October-August, part time	None [1]
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Anatomy of the Extremities on the Cadaver	March 25, ten Wednesdays, part time	125.00
University of Maryland School of Medicine, 29 S. Greene St., Baltimore 1, Md.	Anatomy of the Head and Neck as Applied to the Eye, Ear, Nose, and Throat [2]	Arranged, 150 hours, part time	75.00
	General Anatomy [2]	Arranged	Not given
	Surgical Anatomy [2]	January to June, 90 hours, part time	150.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass.	Surgical Anatomy	March 2-April 24, part time	200.00
	Neuro-Anatomy	June 8-26, full time	100.00
University of Michigan Medical School, Ann Arbor, Mich.			
At: University Hospital	Anatomy	Thursdays, February 12-May 28, part time	65.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.	Regional Anatomy—Thorax, Abdomen and Pelvis	March 16-June 13, part time	50.00
	Regional Anatomy—Head and Neck	March 16-June 13, part time	50.00
	Regional Anatomy—Back and Extremities	March 16-June 13, part time	50.00
	Surgical Anatomy	March 16-June 13, part time	50.00
Cornell University Medical College, 1300 York Ave., New York 21, N. Y.	Surgical Anatomy	June 1-30, full time	200.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Applied Anatomy for the General Surgeon	To be arranged, part time	375.00
	Anatomy of the Thorax	To be arranged, part time	150.00
	Anatomy of the Abdomen	To be arranged, part time	150.00
	Applied Anatomy for the Otolaryngologist	To be arranged, part time	275.00
	Applied Anatomy of the Urogenital System	To be arranged, part time	300.00
	Applied Anatomy for the Anesthetist	To be arranged, part time	275.00
	Anatomy for the Orthopedic Surgeon	To be arranged, part time	150.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y.	411-B Anatomy of the Head and Neck	March 30-June 19, part time	90.00
	412-A Anatomy of the Thorax and Its Viscera	January 5-March 21, part time	90.00
	413-B and C Anatomy of the Abdomen	January 5-March 27, and March 30-June 19, part time	90.00
	414-B Anatomy of the Female Pelvis	March 30-June 19, part time	90.00
	415-A Anatomy of the Genitourinary System	January 5-March 27, part time	90.00
	416-A Anatomy of the Musculoskeletal System	January 5-March 27, part time	90.00

References will be found on page 1530.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1953, to July 15, 1953—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	ANATOMY—Continued		
University of Pittsburgh School of Medicine, 300 Pennsylvania Hall	Applied Anatomy	October 6-June 4, full time	$100.00 tuition 50.00 laboratory 75.00 per month
Western Reserve University, Medical School, 2109 Adelbert Rd., Cleveland, Ohio	Anatomy 11-G	October 1-April 30, part time	
	ANESTHESIOLOGY		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Anesthesiology	Every two months, full time	300.00
University of Colorado School of Medicine, 4200 E. Ninth Ave., Denver, Colo.	Anesthesia for General Practitioners	May 1-2, full time	10.00 per day 5.00 regis. fee
St. Francis Hospital, 114 Woodland St., Hartford 5, Conn.	General and Regional Anesthesia	January 1, April 1, 3 weeks, full time	Not given
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Practical Two-Week Course in Spinal, Regional and Intravenous Anesthesia	Every two weeks, by appointment, full time	150.00
	Practical Two-Week Course in Endotracheal Anesthesia	Every two weeks, by appointment, full time	150.00
	Practical One-Month Course in Nitrous Oxide and Ether Anesthesia	1st of every month, by appointment, full time	125.00
	Practical One-Month Course in Ether, Nitrous Oxide, Ethylene and Cyclopropane Anesthesia	1st of every month, by appointment, full time	200.00
University of Kansas Medical Center, 39th and Rainbow Blvd., Kansas City, Kan.[3]	Anesthesiology	April 13-15, full time	30.00
Boston University School of Medicine, 80 E. Concord St., Boston 18, Mass. At: Massachusetts Memorial Hospital, Boston	Clinical Anesthesiology	Arranged, 4 times a year, full time	None
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston, Mass.[4] At: Boston City Hospital	Anesthesiology	By arrangement, part time	65.00
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Anesthesiology for General Physicians	January 8-10, full time	25.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Clinical Anesthesiology	To be arranged, full time	200.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Applied Anesthesia	October, January, April, full time	300.00
	Anesthetic Technic	Arranged, 6 weeks, full time	100.00
	Regional and Spinal Anesthesia	Arranged, 6 weeks, full time	100.00
New York University Postgraduate Medical School, 477 First Ave., New York 21, N. Y.	510-A Anesthesiology: Endotracheal and Related Methods	February 2-7, full time	75.00
	512-B Regional Anesthesiology	January 5-16, full time	200.00
	512-C Regional Anesthesiology	May 11-22, full time	200.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Segmental Neuralgias; Relief by Regional Anesthesia	October-May, 3 weeks, full time	200.00
University of Texas, Postgraduate School of Medicine, 1400 Outer Belt Drive, Houston 25, Texas At: University of Texas, Medical Branch, Galveston	Anesthesiology Conference	April 24-25, full time	10.00
	ARTHRITIS		
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Personal Course in Arthritis and Allied Rheumatic Diseases	April 3, ten Fridays, part time	100.00
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Arthritis and Allergy for General Physicians	May 11-13, full time	25.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, N. Y. At: Jewish Hospital	Arthritis	April, once weekly, 8 weeks, part time	30.00
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	542-A Arthritis and Allied Rheumatic Disorders	April 14-June 2, part time	50.00
	5414-A Arthritis and Allied Rheumatic Disorders	July 6-17, full time	125.00
D. T. Watson School of Physiatrics, Leetsdale, Pa.[34]	Protective Body Mechanics in Arthritis	March and April, full or part time	10.00
	BACTERIOLOGY		
Department of the Navy, Bureau of Medicine and Surgery, Washington, D. C. At: U. S. Naval Air Station, Jacksonville, Fla.	Malariology and Insect Control	First and third Wednesday of each month, 14 days, full time	None
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Bacteriology	To be arranged, part time	100.00
	Immunology	To be arranged, part time	50.00
	Parasitology	To be arranged, part time	75.00
	BASIC SCIENCE		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Basic Science in Surgery and Surgical Specialties	September 29-June 5, full time	800.00
University of Southern California School of Medicine, Medical Extension, 1200 N. State St., Los Angeles 33, Calif. At: Veterans Memorial Auditorium, Santa Rosa, Calif.	Regional Medical and Surgical Institute	February 26-27, full time	5.00
At: U. S. Naval Hospital, San Diego, Calif.	#820 Basic Science	October 3-May 29, part time	Navy contract
At: U. S. Naval Hospital, Corona, Calif.	#820 Basic Science	October 28-April 21, part time	Navy contract
University of Colorado School of Medicine, 4200 E. Ninth Ave., Denver, Colo.	Neuro-Anatomy and Neurophysiology	January 2-June 25, part time	28.00 per quarter
	Applied Medical Science	January 2-March 31, full time	52.00 per quarter residents
		April 1-June 6, full time	117.00 non-residents
University of Maryland School of Medicine, 29 S. Greene St., Baltimore 1, Md.	Basic Sciences	September to June, part time	50.00
University of Michigan Medical School, Ann Arbor, Mich. At: University Hospital	Basic Sciences	September 29-June 6, full time	250.00 per semester
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Basic Science [5]	October, 9 months, full time	710.00
University of South Dakota School of Medicine, Vermillion, S. D.	Postgraduate Basic Science Course [2]	February 1 to June 1, part time	75.00

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Postgraduate Continuation Courses for Physicians—Jan. 1, 1953, to July 15, 1953—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
BIOCHEMISTRY			
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, N. Y. At: Beth El Hospital	Clinical Biochemistry	April, once weekly, 10 weeks, part time	$30.00
CARDIOVASCULAR DISEASE			
University of Southern California School of Medicine, Medical Extension, 1200 N. State St., Los Angeles 33, Calif. At: Los Angeles County General Hospital	2832 Cardiology and Vascular Diseases	September 15-August 28, full time	1,000.00
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Personal Course in Cardiovascular Diseases	April 15, ten Wednesdays, part time	100.00
Indiana University School of Medicine, Indianapolis, Ind.	Postgraduate Symposium of the Heart	February 3, full time	None
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: Peter Bent Brigham Hospital	Clinical Heart Disease	July 1-31, full time	200.00
At: Beth Israel Hospital	Cardiology I	January 26-May 8, full time	500.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston, Mass.[4] At: Pratt Diagnostic Clinic	Cardiology	March 16-20, full time	45.00
University of Michigan Medical School, Ann Arbor, Mich. At: University Hospital	Diseases of the Heart	March 16-20, full time	50.00
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Cardiovascular Diseases for General Physicians	February 12-14, full time	25.00
Columbia University, 630 W. 168th St., New York 32, N. Y. At: Mt. Sinai Hospital	Clinical Cardiology (Medicine PM 29)	February 4-April 8, part time	45.00
	Cardiovascular Disease (Medicine PM 31)	January 19-27, full time	75.00
	Spatial Vectorcardiography (Medicine PM 43)	March 16-21, full time	60.00
	Bedside Clinics in Heart Disease (Medicine PM 46)	February 16-April 13, part time	30.00
	Heart Disease and Circulatory Dynamics (Medicine PM 48)	February 17-April 21, part time	45.00
At: Montefiore Hospital	Cardiology II (Medicine PM 62)	February 3-June 2, part time	150.00
	Cardiology III (Medicine PM 63)	February 3-June 2, part time	200.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, N. Y. At: Jewish Hospital	Advances in Cardiology and Electrocardiography	April, once weekly, 10 weeks, part time	30.00
At: Coney Island Hospital	Cardiovascular Disease	April, once weekly, 10 weeks, part time	20.00
At: Beth El Hospital	Clinical Cardiology	April, once weekly, 10 weeks, part time	30.00
New York Medical College, Flower and Fifth Ave. Hospitals, 29 E. 106th St., New York 29, N. Y.	Cardiology	Any Wednesday, except July and August, part time	150.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Diagnosis and Treatment of Diseases of the Heart	Arranged, 3 weeks, part time	75.00
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	544-A Cardiology	April 16-June 4, part time	75.00
	5425-A Cardiology	June 29-July 24, full time	250.00
	5427-B Auscultation of the Heart	February 2-4, full time	50.00
	5433-B Fluoroscopy of the Heart	February 5-6, full time	30.00
	5436-A Degenerative Heart Disease	January 12-14, full time	40.00
St. Francis Sanatorium for Cardiac Children, Roslyn, N. Y.	Comprehensive Postgraduate Course in Rheumatic Fever and Rheumatic Heart Disease	June 1-12, full time	100.00
Cleveland Area Heart Society, 2073 East 9th St., Cleveland 15, Ohio At: Western Reserve University	Cardiac Resuscitation Course	Once monthly except July, full time	20.00 [6]
American College of Physicians, 4200 Pine St., Philadelphia 4, Pa. At: University of Southern California School of Medicine, Los Angeles, Calif.	Cardiovascular Diseases	March 2-7, full time	30.00 mbrs. 60.00 non-mbrs.
At: Philadelphia Institutions, Philadelphia, Pa.	Cardiovascular Diseases	To be announced, full time	30.00 mbrs. 60.00 non-mbrs.
At: Wayne University College of Medicine, Detroit, Mich.	Electrocardiography	To be announced, full time	30.00 mbrs. 60.00 non-mbrs.
Hahnemann Medical College and Hospital of Philadelphia, 230 N. Broad St., Philadelphia 2, Pa.	Cardiology	October 9-May 28, part time	100.00
	Advanced Cardiology	October 9-May 28	200.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Cardiology	October, January, March, 1 day full time	80.00
University of Vermont College of Medicine, Burlington, Vt.[7] At: Bishop DeGoesbriand Hospital	Cardiovascular Diseases, Refresher Course	Early summer, 1 week, full time	None
	Fundamentals of Cardiovascular Disease and Treatment	February-March, part time	None
DERMATOLOGY AND SYPHILOLOGY			
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Dermatology	January 7-March 25, once weekly, part time	40.00
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Personal Course in Dermatology	April 2, ten Thursdays, part time	100.00
	Clinical Refresher Course in Dermatology	Every Monday, two or more weeks, full time	75.00
	Intensive Two-Week Course in Dermatology	May 11, 2 weeks, full time	100.00
	12-Month Clinical Course in Dermatology	By appointment, full time	1,000.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: Massachusetts General Hospital	Dermatology and Syphilology	By arrangement	600.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston, Mass.[4] At: Boston City Hospital	Dermatology	April 6-10, full time	45.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.	Seminar in Dermatology	Every quarter, part time	15.00
At: Receiving Hospital, Detroit	Dermopathology Seminar	Every quarter, part time	15.00

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Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
DERMATOLOGY AND SYPHILOLOGY—Continued			
Columbia University, 630 W. 168th St., New York 32, N. Y. At: Mt. Sinai Hospital	Venereal and Skin Diseases (Dermatology PM 32)	May 12-22, part time	$30.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, N. Y. At: Kings County Hospital	Dermatology for the General Practitioner	April, once weekly, 8 weeks, part time	20.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Dermatology and Syphilology for the General Practitioner	Arranged, 5 days	75.00
	Dermatology and Syphilology for Specialists	Arranged, 5 days	75.00
	Dermatologic Histopathology	Arranged, 5 days	75.00
	Training for Specialization in Dermatology and Syphilology	3 years, full time	1,000.00
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	522-A Seminar in Dermatology and Syphilology	January 19-23, full time	75.00
	523-A Symposium on Dermatology and Syphilology (for Dermatologists)	May 18-22, full time	85.00
	525-A Dermatology and Syphilology	July 1, 1 year, full time	700.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Dermatology for the General Practitioner	March 17-18, full time	40.00
University of Texas, Postgraduate School of Medicine, 207-A Hermann Professional Bldg., Houston 25, Texas At: Shannon West Texas Memorial Hospital, San Angelo, Texas	Recognition and Management of Common Skin Diseases	Spring, part time	10.00
At: University of Texas, Medical Branch, Galveston	Dermatology Conference	January 16-17, full time	10.00
DIABETES			
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Personal Course in Medical and Surgical Diabetes	March 18, ten Wednesdays, part time	100.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston, Mass.[4] At: Pratt Diagnostic Clinic	Diabetes	March 9-13, part time	30.00
American Diabetes Association, 11 W. 42d St., New York 36, N. Y. At: University of Toronto, Toronto, Canada	Diabetes and Basic Metabolic Problems	January 19-21, full time	20.00 mbrs. 40.00 non-mbrs.
Columbia University, 630 W. 168th St., New York 32, N. Y. At: Mt. Sinai Hospital	Diabetes and Nutrition (Medicine PM 38)	January 28-29, full time	20.00
University of Virginia, School of Medicine, University Station, Charlottesville, Va.	Diabetes and Its Complications	April 17, full time	None
DISEASES OF THE CHEST			
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Diseases of the Chest	January 22-23, full time	15.00
University of California, University Extension, School of Medicine, 405 Hilgard Ave., Los Angeles 24, Calif. At: Los Angeles County Medical Association	Chest Disease Symposium	January 22-23, full time	25.00
U. S. Public Health Service, Communicable Disease Center, Atlanta, Georgia	Laboratory Diagnosis of Tuberculosis	March 16-27, full time	None
	Laboratory Diagnosis of Tuberculosis	March 30-April 3, full time	None
American College of Chest Physicians, 112 E. Chestnut St., Chicago 11, Ill.[8] At: Marquette University School of Medicine, Milwaukee, Wis.	Diseases of the Chest	March, 1 day a week, part time	25.00
At: Bellevue Stratford Hotel, Philadelphia, Pa.[9]	Diseases of the Chest	March 23-27, full time	50.00
American Trudeau Society, 1790 Broadway, New York 19, N. Y. At: Boston, Mass.	The Measurement of Pulmonary Function in Health and Disease	March 23-27, 1953, full time	50.00
At: Los Angeles County Medical Assn. Bldg., Los Angeles, Calif.	Fourth Annual Chest Disease Symposium	January 22-23, 1953, full time	Not given
At: University of California, San Francisco	Seminar on Pulmonary Function	February 6-8, 1953	50.00
Columbia University, 630 W. 168th St., New York 32, N. Y. At: Columbia Presbyterian Medical Center	Diseases of the Chest (Medicine PM 1)	January 19-24, full time	40.00
At: Mt. Sinai Hospital	Diseases of the Chest (Medicine PM 37)	February 2-3, full time	20.00
At: Montefiore Hospital	Diseases of the Chest (Medicine PM 71)	January 2-May 22, part time	100.00
At: Bellevue Hospital	Diseases of the Chest (Medicine PM 80)	February 2-28, full time	75.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y. At: Municipal Sanitarium, Otisville, N. Y.	Diseases of the Chest	March and April, 2 months, part time	100.00
	Pulmonary Tuberculosis	To be arranged, full time	175.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Bronchoscopy	Arranged, 4 weeks, part time	150.00
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	548-A Acute and Chronic Diseases of the Chest	April 13-June 1, part time	35.00
	5416-A Acute and Chronic Pulmonary Diseases	March 9-13, full time	45.00
	5432-A Pulmonary Diseases in Relation to Industry	May 18-22, full time	50.00
Saranac Lake Medical Society, P. O. Box 707, Saranac Lake, N. Y.	Tuberculosis Symposium for General Practitioners	July 13-18, full time	45.00 for mbrs. A. A. G. P. 50.00 non-mbrs.
Trudeau Foundation, P. O. Box 131, Saranac Lake, N. Y.	Trudeau School of Tuberculosis	June 1-27, 1953, full time	100.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	The Lungs-Clinical Physiology and Pulmonary Function Tests	March 16-20, full time	100.00
University of Vermont College of Medicine, Burlington, Vt. At: Mary Fletcher Hospital	Chest Diseases	Weekly, 1 hour, all year	None
ELECTROCARDIOGRAPHY			
Georgetown University School of Medicine, 3900 Reservoir Rd., Washington, D. C.	Electrocardiography	January 26-April 20, full time	50.00
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Personal Course in Electrocardiography and Heart Disease	February 11, ten Wednesdays, part time	150.00
	Two-Week Intensive Course in Electrocardiography and Heart Disease	March 16, July 13, full time	150.00

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Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
ELECTROCARDIOGRAPHY—Continued			
Indiana University School of Medicine, Indianapolis, Ind.	Course in Electrocardiography	February 4, 5, full time	$25.00
University of Kansas Medical Center, 39th and Rainbow Blvd., Kansas City, Kan.[3]	Electrocardiography	March 9-14, full time	50.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston, Mass.[4]			
At: Pratt Diagnostic Clinic	Electrocardiography II	January 12-14	30.00
University of Michigan Medical School, Ann Arbor, Mich.			
At: University Hospital	Electrocardiographic Diagnosis	March 23-28, full time	75.00
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Electrocardiography for General Physicians	June 8-12, full time	40.00
Columbia University, 630 W. 168th St., New York 32, N. Y.	Intensive Course in Elementary Electrocardiography (Medicine PM 41)	January 5-10, full time	60.00
At: Mt. Sinai Hospital	Intensive Course in Advanced Electrocardiography (Medicine PM 42)	January 12-17, full time	60.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, N. Y.			
At: Jewish Hospital	Electrocardiography for the General Practitioner	April, three times weekly, 6 weeks, part time	30.00
	Clinical Ballistocardiography	April, once weekly, 8 weeks, part time	20.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Electrocardiography	Spring, 2 weeks, part time	100.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Electrocardiographic Interpretation	Arranged, two weeks, part time	75.00
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	544-B Clinical Electrocardiography	April 16-June 4, part time	40.00
	5423-B Electrocardiography	March 30-April 3, full time	75.00
University of Oregon Medical School, 3181 S. W. Sam Jackson Park Road, Portland 1, Ore.	Electrocardiography	May 4-8, full time	50.00
University of Vermont College of Medicine, Burlington, Vt.			
At: Bishop DeGoesbriand Hospital	Advanced Electrocardiography	May, 4 weeks, part time	None
	Elementary Electrocardiography	May, 4 weeks, part time	None
	Clinical Electrocardiography	April, May, June, 8 weeks, part time	None
ELECTROENCEPHALOGRAPHY			
University of Illinois College of Medicine, 1853 W. Polk St., Chicago 12, Ill.	Electroencephalography for Technicians	Every three months, January, April, July, October, full time	100.00 [10]
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Electroencephalography	By arrangement, 2 weeks, full time	200.00
ENDOCRINOLOGY			
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Endocrinology	Once weekly, April 7-May 26, part time	30.00
Medical College of Georgia, Augusta, Ga.	Endocrinology	April 20-25, full time	60.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass.			
At: Massachusetts General Hospital, Boston	Clinical Aspects of Endocrine and Metabolic Disorders in Children and Adolescents	April 16-18, full time	.....
Columbia University, 630 W. 168th St., New York 32, N. Y.			
At: Mt. Sinai Hospital	Endocrinological Diseases (Medicine PM 39)	February 18-24, full time	30.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, N. Y.			
At: Jewish Hospital	Gynecologic Endocrinology	April, once weekly, 10 weeks, part time	20.00
	Medical and Gynecologic Endocrinology	April, once weekly, 10 weeks, part time	20.00
At: Maimonides Hospital	Metabolic Endocrinology	April, once weekly, 10 weeks, part time	20.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Endocrinology	Spring, 2 weeks, part time	100.00
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	549-A Endocrinology	April 13-June 5, part time	40.00
	5422-A Endocrinology	July 20-24, full time	50.00
University of Vermont College of Medicine, Burlington, Vt.			
At: Bishop DeGoesbriand Hospital	Practical Endocrinology	April-May, 8 days, part time	None
ENDOSCOPY			
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Clinical Bronchoscopy	April 15, eight Wednesdays, part time	150.00
	One-Week Course in Bronchoscopy	By appointment, full time	100.00
	Ten-Day Practical Course in Cystoscopy	20 times during year, full time [11]	150.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Bronchoesophagology, Gastroscopy and Laryngeal Surgery	January 5-17, May 25-June 6, full time	250.00
FRACTURES			
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Intensive Two-Week Course in Fractures and Traumatic Surgery	March 2, June 15, full time	125.00
	Clinical Course in Fractures	1st of every week, 1 or 2 weeks, full time	50.00 [12]
	Special Course in Fractures	March 18, ten Wednesdays, part time	125.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, N. Y.			
At: Kings County Hospital	Fractures	April, once weekly, 10 weeks, part time	20.00
New York University Post-Graduate Medical School, 477 First Ave., New York 16, N. Y.			
At: Beekman-Downtown Hospital	608-A Diagnosis and Treatment of Fractures and Dislocations	February 2-14, full time	125.00
GASTROENTEROLOGY			
University of Southern California, School of Medicine, 1200 N. State St., Los Angeles 3, Calif.	Gastroenterology (32 Units)	12 months, full time	1,000.00
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	One-Week Advanced Course in Gastroscopy and Gastroenterology	March 9, June 22, full time	150.00
	Two-Week Course in Gastroenterology	May 18, two weeks, full time	100.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.			
At: Receiving Hospital, Detroit	Gastroenterology	Every quarter, part time	15.00
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Gastroenterology for General Physicians	April 27-29, full time	25.00

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Postgraduate Continuation Courses for Physicians—Jan. 1, 1953, to July 15, 1953—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and or Tuition
GASTROENTEROLOGY—Continued			
Columbia University, 630 W. 168th St., New York 32, N. Y.			
At: Mt. Sinai Hospital	Gastrointestinal Diseases (Medicine PM 32)	February 9-13, full time	850.00
	Intensive Course in Gastroenterology (Medicine PM 45)	March 30-April 3, full time	60.00
At: Columbia Presbyterian Medical Center	Gastroscopy (Medicine PM 2)	By arrangement	250.00
At: Montefiore Hospital	Advanced Gastroenterology (Medicine PM 73)	January 20-May 12, part time	75.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, N. Y.			
At: Greenpoint Hospital	Gastroscopy	April, once weekly, 6 weeks, part time	30.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Gastroscopy	Arranged, 2 weeks, part time	200.00
	Gastroenterology	Spring, 1 month, part time	100.00
	Gastroscopy, Advanced	Arranged, 5 weeks, part time	200.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Proctology, Gastroenterology, Operative Proctology (Dissection)	October, January, April, part time	200.00
	Clinical Proctology and Gastroenterology	October, January, April, part time	100.00
	Clinical Proctology	Arranged, 6 weeks, part time	75.00
	Clinical and Cadaver Proctology	Arranged, 6 weeks, part time	175.00
	Clinical Gastroenterology	Arranged, 6 weeks, part time	75.00
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	5421-B Gastroenterology	June 15-19, full time	45.00
	5411-A Gastroenterology	April 15-June 3, part time	40.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	The Diagnosis and Management of Disorders of the Gastrointestinal Tract in Infancy and Childhood	June 9-11, full time	60.00
GERIATRICS			
University of Kansas Medical Center, 39th and Rainbow Blvd., Kansas City, Kan.[3]	Medicine of the Aging	March 25-27, full time	30.00
Columbia University, 630 W. 168th St., New York 32, N. Y.			
At: Mt. Sinai Hospital	Geriatrics (Medicine PM 47)	February 5-May 28, part time	65.00
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	5426-A Geriatrics	January 28-30, full time	30.00
HEMATOLOGY			
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	One-Week Personal Course in Hematology	June 15, full time	100.00
	Morphologic Hematology	March 14, ten Wednesdays, part time	150.00
University of Kansas Medical Center, 39th and Rainbow Blvd., Kansas City, Kan.[3]	Hematology	April 23-25, full time	25.00
University of Michigan Medical School, Ann Arbor, Mich.			
At: University Hospital	Diseases of Blood and Blood-Forming Organs	April 6-10, full time	50.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.			
At: Receiving Hospital, Detroit	Review of Clinical Hematology	Every quarter, part time	15.00
	Hematology Clinic	Every quarter, part time	15.00
Columbia University, 630 W. 168th St., New York 32, N. Y.			
At: Mt. Sinai Hospital	Laboratory Methods in Hematology (Medicine PM 28)	March 2-26, part time	200.00
	Hematology (Medicine PM 35)	February 4-7, full time	30.00
At: Montefiore Hospital	Clinical Hematology (Medicine PM 66)	February 3-June 9, part time	75.00
	Advanced Hematology (Medicine PM 67)	February 10-May 26, part time	75.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Hematology	Arranged, 2 months, part time	50.00
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	546-B Clinical Hematology	April 14-June 4, part time	40.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.			
At: Bryn Mawr Hospital, Bryn Mawr	Clinical and Laboratory Hematology	6 weeks, beginning October, December, February and April, full time	200.00
HISTOLOGY			
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Histology	Arranged, 5 weeks, full time	300.00
INDUSTRIAL MEDICINE			
Harvard School of Public Health, 55 Shattuck St., Boston, Mass.	Industrial Health	February 2-March 28, full time	225.00
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	482-A Occupational Dermatoses	February 2-6, full time	50.00
	483-A Industrial Medicine	March 2-May 29, full time	200.00
Institute of Industrial Health, College of Medicine, University of Cincinnati, Cincinnati 19, Ohio	Industrial Medicine	Begins July 1, 12 months, full time	400.00
	Industrial Medicine	Begins July 1, 3 years, full time	Stipend
INTERNAL MEDICINE			
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Differential Diagnosis of Internal Diseases	Once weekly, January 6-March 24, part time	50.00
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Two-Week Intensive Course in Internal Medicine	May 4, full time	75.00
	One-Week Course in Liver and Biliary Tract Diseases	June 8, full time	100.00
Tulane University School of Medicine, 1430 Tulane Ave., New Orleans, La.	Internal Medicine in General Practice	March 23-27, full time	50.00
Boston University School of Medicine, 80 E. Concord St., Boston 18, Mass.			
At: Massachusetts Memorial Hospitals, Boston	Internal Medicine	October 22-April 15, part time	100.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass.			
At: Boston City Hospital	Internal Medicine 2	June 1-August 31, full time	375.00
At: Massachusetts General Hospital	Internal Medicine 3	June 22-July 31, full time	250.00
University of Michigan Medical School, Ann Arbor, Mich.			
At: University Hospital	Metabolism and Endocrinology	April 6-10, full time	50.00
	Recent Advances in Therapeutics	March 30-April 2, full time	25.00
	Clinical Internal Medicine	January 8-April 16, part time	35.00
Columbia University, 630 W. 168th St., New York 32, N. Y.			
At: Mt. Sinai Hospital	Symposium on Internal Medicine (Medicine PM 30)	January 19-February 21, full time	200.00
	Diseases of the Liver (Medicine PM 33)	February 14-21, part time	20.00
	Diseases of the Kidneys (Medicine PM 34)	February 16-17 part time	20.00

References will be found on page 1530.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1953, to July 15, 1953—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
INTERNAL MEDICINE—Continued			
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, N. Y.			
At: Jewish Hospital	Internal Medicine	April, twice weekly, 8 weeks, part time	$40.00
At: Kings County Hospital	Recent Progress in Internal Medicine	April, once weekly, 10 weeks, part time	30.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Internal Medicine	Monthly, except July and August, full time	150.00 per month
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	541-A Seminar in Internal Medicine	April 13-June 5, full time	250.00
	5419-A Symposium on Internal Medicine	June 15-26, full time	5 days 50.00 10 days 90.00
	5410-A Diseases of the Liver and Biliary Tract	April 15-June 3, part time	35.00
	5428-A Internal Medicine	March 2-27, part time	100.00
	5429-A Internal Medicine	July 1, 1 year, full time	700.00
American College of Physicians, 4200 Pine St., Philadelphia 4, Pa.			
At: Frank E. Bunts Educational Institute of the Cleveland Clinic Foundation, Cleveland, Ohio	Pathology and Pathologic Physiology in Internal Medicine	February 16-21, full time	30.00 mbrs. 60.00 non-mbrs.
At: The Mayo Foundation, Rochester, Minn.	Internal Medicine	March 23-28, full time	30.00 mbrs. 60.00 non-mbrs.
At: Pennsylvania Hospital, Philadelphia 7, Pa.	Internal Medicine	May 11-16, full time	30.00 mbrs. 60.00 non-mbrs.
At: University of Oregon Medical School, Portland, Ore.	Internal Medicine	May 18-23, full time	30.00 mbrs. 60.00 non-mbrs.
At: Cornell University School of Medicine and the New York Hospital, New York ,N. Y.	Internal Medicine	To be announced	30.00 mbrs. 60.00 non-mbrs.
Tennessee State Medical Association, 4 S. Dunlap St., University Center, Memphis 3, Tenn.			
At: 50 teaching centers or county seat towns in state	Internal Medicine and Circulatory Diseases	1 night a week in each center for 10 weeks, August 1-September 1, part time	20.00
University of Vermont College of Medicine, Burlington, Vt.			
At: Mary Fletcher Hospital	Internal Medicine	By arrangement	None
At: Bishop DeGoesbriand Hospital	Internal Medicine	One day a week, all year	None
University of Wisconsin Medical School, Madison 6, Wis.	Internal Medicine	One day a week, all year	None
At: University Hospitals, 1300 University Ave., Madison, Wis.	Observation Course in Internal Medicine	Continuously, 30 days, full time	100.00 per month
MALIGNANT DISEASE			
Connecticut State Medical Society, 160 St. Ronan St., New Haven, Conn.	Connecticut Cancer Conference	February, March, one day, full time, annually	None
Medical College of Georgia, Augusta, Ga.	Symposium on Exfoliative Cytology, Cancer Detection and Diagnosis	February 15-20, full time	100.00
Indiana University School of Medicine, Indianapolis, Ind.	Carcinoma of the Uterus	March 4, full time	None
Iowa State Medical Society, 529 36th St., Des Moines			
At: Charles City	Cancer Institute	November 6, full time	Not given
University of Michigan Medical School, Ann Arbor, Mich	Cancer	February 2-3, full time	25.00
American Cancer Society, 105 S. State St., Jackson, Miss.			
At: Baptist Hospital, Jackson	Making the Doctor's Office a Cancer Detection Center [13]	February, 2 days, full time	15.00
	Cancer Seminar	February, 2 days, part time	10.00
Columbia University, 630 W. 168th St., New York 32, N. Y.			
At: Columbia Presbyterian Medical Center	Cancer Diagnosis and Treatment (Cancer PM 1)	April 20-May 2, full time	100.00
Cornell University Medical College, 1300 York Ave., New York 21, N. Y.	Exfoliative Cytology	March 2-May 29, full time	300.00
University of Texas, Postgraduate School of Medicine, 1400 Outer Belt Drive, Houston 25, Texas			
At: University of Texas, Medical Branch, Galveston	12th Tumor Conference	March 9-13, full time	15.00
University of Vermont College of Medicine, Burlington, Vt.	Cancer Symposium	April, 2 days, full time	None
Puerto Rico Medical Association, San Juan, P. R.	Postgraduate Instruction in Cancer for the General Practitioner	Arranged, continuously, 10 weeks	None
MEDICINE, GENERAL			
Alabama Academy of General Practice, 17 Molton St., Montgomery, Ala.			
At: Medical College of Alabama, Birmingham	Sixth Postgraduate Seminar	January 21-22, full time	None
Medical College of Alabama, Birmingham, Ala.[14]			
At: Birmingham, Selma, Winfield	Postgraduate Seminars	January and August, 2 days, full time	None
At: Selma, Winfield	Postgraduate Seminars	Quarterly, 3 days, part time	None
California Medical Association, 450 Sutter St., San Francisco, Calif.			
At: Laguna Beach, Santa Rosa, Sacramento	Three Two-Day Institutes	January, February, March, full time	5.00
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Surgical Diseases of the Peripheral Vascular System	Once weekly, January 6-February 24, part time	30.00
	Varicose Veins	Once weekly, March 3-April 21, part time	25.00
Los Angeles County Medical Association, 1925 Wilshire Blvd., Los Angeles 5, Calif.			
At: San Fernando Branch, East Los Angeles Branch	Practical Medicine Lecture Series	Tuesday and Wednesday mornings, continuously, part time	None
University of California, University Extension, School of Medicine, 405 Hilgard Ave., Los Angeles 24, Calif.	Brucellosis	May, 2 days, full time	45.00
University of Colorado School of Medicine, 4200 E. Ninth Ave., Denver, Colo.[15]			
At: Weld County Hospital, Greeley, Colo.	Third Annual Spring Clinics	May 7, 14, 21, 28, full time	Arranged
At: Place to be determined in Cheyenne, Wyo.[16]	Lectures for General Practitioners	March 10, 17, 24, 31, full time	Arranged

References will be found on page 1530.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1953, to July 15, 1953—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
MEDICINE, GENERAL—Continued			
George Washington University School of Medicine, Washington, D. C.			
At: University Hospital, Washington, D. C.	General Medicine	March 23-27, full time	875.00
Medical College of Georgia, Augusta, Ga.	Postgraduate Course for Negro Physicians	June, one week, full time	None
	Newer Developments in Medicine	March 9-11, full time	15.00
Chicago Medical School, 710 S. Wolcott Ave., Chicago 12, Ill.	Seminars on Research	Once each quarter, part time	None
	Seminars (Weekly)	Six or seven 1½-hour sessions per quarter, part time	None
At: Cook County Hospital; Mt. Sinai Hospital	Alumni Homecoming Week, Refresher Clinics	One week, spring, part time	None
Chicago Medical Society, 86 E. Randolph St., Chicago 1, Ill.	Annual Clinical Conference	March 3-6, full time	5.00 non-mbrs.
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Personal Course in Medical Emergencies, Diagnosis and Treatment	March 11, ten Wednesdays, part time	80.00
Illinois Academy of General Practice, 14 E. Jackson, Chicago Ill.	Personal Course in General Medicine	April 1, ten Wednesdays, part time	100.00
At: Chicago, Alton, Belleville, Danville, Herrin, Elmhurst, Joliet, Moline, Peoria, Rockford	Circuit Courses	Once weekly, part time, March 25-April 29	35.00 mbrs. 75.00 non-mbrs.
Illinois State Medical Society, 31 N. State St., Chicago			
At: Metropolitan down-state areas	Postgraduate Conferences	Spring, once a year, part time	None
Indiana State Medical Association, 23 E. Ohio St., Indianapolis, Ind.	Telephone Seminars and Recordings	First Tuesday of each month	.50 per program
University of Kansas Medical Center, 39th and Rainbow Blvd., Kansas City, Kan.	General Practice Postgraduate Course	October 16-April 16	20.00
	Metabolic Diseases	March 23-24, full time	20.00
At: Buchanan County Medical Society, St. Joseph, Mo.	Postgraduate Medical Course	October 16-March 19	25.00
At: Jasper County Medical Society, Joplin, Mo.	Postgraduate Medical Course	October 28-March 18	25.00
At: Parsons, Winfield, Hutchinson, Emporia, Great Bend, Gorden City, Colby, Beloit, and Concordia [3]	Six-Months Postgraduate Course (Circuit Type)	December 2-May 1	25.00
New Orleans Graduate Medical Assembly, 1430 Tulane Ave., New Orleans, La.			
At: New Orleans Municipal Auditorium	Graduate Medical Assembly	March 2-5, full time	20.00
Tulane University School of Medicine, Division of Graduate Medicine, 1430 Tulane Ave., New Orleans, La.	Surgery, Gynecology, and Traumatology for General Practitioners	January 12-17, full time	50.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass.			
At: New England Deaconess Hospital	Diabetes and Endocrinology in Relation to General Medicine	July 6-8	30.00
Postgraduate Medical Institute of the Massachusetts State Medical Society, 22 The Fenway, Boston, Mass.			
At: Various hospital auditoriums in Boston	Course in General Medicine	Once weekly, October 1-April 8, part time	50.00
At: Cushing Veterans Administration Hospital, Framingham, Mass.	Postgraduate Course in General Medicine	Every two weeks, part time	5.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston, Mass.[4]			
At: Pratt Diagnostic Clinic	Peripheral Vascular Diseases	March 9-10, full time	30.00
University of Michigan Medical School, Ann Arbor, Mich.			
At: Alpena, Bay City, Benton Harbor, Flint, Jackson, Kalamazoo, Lansing, Mt. Clemens, Muskegon, Saginaw, Traverse City, Escanaba, Houghton, Iron Mountain, Ironwood, Marquette, Sault Ste. Marie	Extramural Course	1 day in each center, April and May	None [17]
At: University Hospital	General Practice	April 13-24, full time	100.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.			
At: Receiving Hospital	Medical Seminar	Every quarter, part time	15.00
	Medical Conference	Every quarter, part time	15.00
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Clinical Chemistry for General Physicians	February 2-4, full time	25.00
	Recent Advances in Diagnosis for Internists	February 16-18, full time	25.00
University of Nebraska College of Medicine, Omaha, Neb.	Refresher Course in General Medicine	March 24-26, full time	Not given
Atlantic City Hospital, 20 S. Ohio Ave., Atlantic City, N. J.	Clinical Conferences and Lectures	Continuously, part time	None
Columbia University, 630 W. 168th St., New York 32, N. Y.			
At: Mt. Sinai Hospital	ACTH and Cortisone (Medicine PM 27)	February 24-March 10, part time	20.00
	Study and Treatment of the Ambulant Adult Cardiac Patient (Medicine PM 29)	March 2-April 27, part time	60.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, N. Y.			
At: Jewish Hospital	Hypertension and Nephritis	April, once weekly, 8 weeks, part time	20.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Applied Pharmacology and Therapeutics	To be arranged, part time	100.00
	Peripheral Vascular Disease	Arranged, 2 months, part time	200.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	General Medicine	Arranged, 4 weeks, full time	100.00
	General Practitioners Course	Arranged, 4 weeks, part time	100.00
	Surgical Aspects of Peripheral Vascular Diseases	Arranged, full time	200.00
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	547-A Problems in Diagnosis	April 13-June 1, part time	35.00
	5424-A Nephritis and Hypertension	July 13-17, full time	50.00
	5418-B Peripheral Vascular Diseases	June 22-26, full time	50.00
	5413-A Peripheral Vascular Diseases	April 14-June 2, part time	40.00
	5412-A Nephritis and Hypertension	April 17-June 5, part time	20.00
	430-A Review Course in General Medicine	July 13-24, full time	100.00
	5431-A ACTH and Cortisone	February 18-20, full time	35.00
Duke University School of Medicine, Durham, N. C.	Postgraduate Course	Three times a year, March, June November or December, full time	None
	Refresher Course in Medicine and Pediatrics	June 16-19, full time	25.00
University of North Carolina, Chapel Hill, N. C.[18]	Postgraduate Lecture Series	Annually, 1 day for 5 weeks, full time	Fee
At: 7 locations per year			
University of Cincinnati, College of Medicine, Eden and Bethesda Aves., Cincinnati, Ohio	Seminar Series of the South Western Ohio Society of General Physicians	January 18, part time	10.00 [19] non-mbrs. 15.00

References will be found on page 1530.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1953, to July 15, 1953—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
MEDICINE, GENERAL—Continued			
Jefferson Medical College and Hospital, 1025 Walnut St., Philadelphia 7, Pa.	The Jefferson Graduate Assembly	February 4-6, full time	$5.00
Philadelphia County Medical Society, 301 S. 21st St., Philadelphia 3, Pa. At: Bellevue-Stratford Hotel	Postgraduate Institute	April 28-May 1, full time	10.00
Andrew Jackson Academy of General Practice, Nashville, Tenn. At: Vanderbilt University Hospital and in rural areas	Continuation Course	Continuously, part time	None
Postgraduate Medical Assembly of South Texas, 229 Medical Arts Bldg., Houston, Texas At: Shamrock Hotel	Scientific Meetings	July 20-23, full time	20.00
University of Texas, Postgraduate School of Medicine, 1400 Outer Belt Drive, Houston 25, Texas At: University of Texas, Temple Division, Scott White Hospital, Sherwood and Scott Brindley Foundation, Temple, Texas	Medical Conference	January 12-15, full time	None
University of Utah College of Medicine, 175 East 21st South, Salt Lake City, Utah	General Practice	March 9-13, full time	50.00
Vermont State Medical Society, 128 Merchants Row, Burlington, Vt. At: Mary Fletcher and Bishop DeGoesbriand Hospitals	May Clinical Meeting	Third week in May, one day, full time	None
University of Washington, Seattle, Wash.[20]	General Practice Clinic Day	April 17, full time	None
State Medical Society of Wisconsin, 704 E. Gorham St., Madison 3, Wis. At: Different places throughout state	1953 Postgraduate Teaching Programs for Wisconsin Physicians	January to June [34]	6.00
MICROBIOLOGY			
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.	Microbiology Seminar	March 16-June 13, part time	15.00
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	432-A Viruses and Virus Diseases	March 23-May 9, full time	211.00
NEUROLOGICAL SURGERY			
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	552-A Diagnosis and Treatment of Peripheral Nerve Injuries	January 12-16, full time	90.00
	553-A Trauma of the Central Nervous System	June 15-20, full time	75.00
NEUROLOGY AND PSYCHIATRY			
Los Angeles Institute for Psychoanalysis, 407 Commercial Center St., Beverly Hills, Calif.	Professional Training in Psychoanalysis	January 1-July 15, weekly, part time	232.00
Yale University School of Medicine, 333 Cedar St., New Haven, Conn. At: Connecticut State Hospital, Middletown	Pediatric Neurology	April 20, 27, May 4, 5 days, part time	None
	Basic Psychiatry	Mondays, January 5, February 9, part time	None
At: Child Study Center, Yale University [21]	Child Psychiatry	Mondays, March 9-30, part time	None
At: Southbury Training School, Southbury	Pediatric Neurology	April 6, 13, part time	None
Office of the Surgeon General, Education and Training Division, Washington 25, D. C. At: Walter Reed Army Medical Center, Washington 12, D. C.	Symposium on Stress	March 16-18, full time	None [30,31,32]
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Personal Course in Clinical Neurology	March 11, ten Wednesdays, part time	100.00
	Personal Course in Neuropathology	Hourly basis, by appointment	20.00 per hour
University of Kansas Medical Center, 39th and Rainbow Blvd., Kansas City, Kan.[3]	Applied Neurology	March 19-21, full time	30.00
Metropolitan State Hospital, 475 Trapelo Rd., Waltham, Mass.[22]	Review Course in Basic Neurology and Psychiatry	March 2-May 4, part time	None
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.	Problems in Neurology	March 16-June 13, part time	35.00
American Institute for Psychoanalysis, 220 W. 98th St., New York 25, N. Y.	Workshop on Dreams	Mondays, beginning March 2, 15 weeks, full time	45.00
	Clinical Conference	Once weekly, March 24, 10 weeks full time	30.00
	Case Seminar	Once weekly, January 13, 10 weeks, full time	30.00
	Introduction to Psychoanalytic Technique	Once weekly, March 24, 7 weeks, full time	14.00
	Clinical Conferences on Case Histories I	Once weekly, February 12, 15 weeks, full time	30.00
	Theory on Neurosis	Once weekly, February 12, 15 weeks, full time	30.00
	The Psychoanalytic Relationship, Parts I and II	Once weekly, February 13, 15 weeks, full time	45.00
	Psychiatry and Psychoanalysis	Once weekly, February 13, 15 weeks, full time	30.00
At: New School for Social Research	Dreaming: a Creative Process	Once weekly, February 10, 15 weeks, full time	21.00
	Horney Theory of Neurosis	Once weekly, February 12, 15 weeks, full time	21.00
Columbia University, 630 W. 168th St., New York 32, N. Y. At: Columbia Presbyterian Medical Center	Clinical Electroencephalography and Electromyography (Neurology PM 2)	January 2, 5 days, full time	150.00
At: Mt. Sinai Hospital	Clinical Neurology (Neurology PM 30)	April 20-24, full time	60.00
At: Montefiore Hospital	Advanced Neurology (Neurology PM 61)	By arrangement, full time	150.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, N. Y. At: Jewish Hospital	Child Psychiatry	April, once weekly, 10 weeks, part time	20.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Psychoanalysis and Psychiatry	Spring, 12 days, part time	40.00
	Readings in Psychoanalytic Literature	Spring, 15 days, part time	50.00
	Comprehensive Course in Psychoanalysis	September, 9 months, part time	500.00

References will be found on page 1530.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1953, to July 15, 1953—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
NEUROLOGY AND PSYCHIATRY—Continued			
New York University Post-Graduate Medical School, 477 First Ave., New York 19, N. Y.	641-A Psychiatric and Neurologic Problems in General Practice	January 5-24, part time	$100.00
	643-A Treatment Methods in Psychiatry	January 12-March 7, part time	250.00
Postgraduate Center for Psychotherapy, Inc., 218 E. 70th St., New York 21, N. Y.	SS-20 Therapeutic Techniques in Marital Problems	February 28, part time	5.00
	825 The Diagnostic Significance of the Mosaic Method	Tuesdays, February 17, 5 weeks, part time	20.00
	821 The Handling of Special Problems in Therapy	Tuesdays, March 25, 5 weeks, part time	20.00
	205 Readings in Psychiatry and Allied Fields, Part I and II	Mondays, Part II February 16, 15 weeks	35.00
	204 Continuous Case Seminar	Wednesdays, February 19, 15 weeks, part time	35.00
	203 Psychopathology and Psychodynamics	Mondays, 15 weeks, part time	35.00
	217 Clinical Conferences in Character Disorders	Thursdays, Part II February 19, 15 weeks, part time part time	45.00
	801 Clinical Conferences in Group Psychotherapy	Thursdays, February 19, 12 weeks, part time	35.00
	806 Anthropological Aspects of Psychiatry	Thursdays, February 19, 10 weeks, part time	25.00
University of Cincinnati School of Medicine, Eden and Bethesda Aves., Cincinnati 19, Ohio			
At: Netherland Plaza Hotel, Cincinnati	Seminar in Selected Neurological Syndromes	April 12, full time	10.00
Philadelphia Psychoanalytic Society, 255 S. Seventeenth St., Philadelphia 3, Pa.	Professional Training in Psychoanalysis	Continuously, September to June, full time	250.00 per year
	Educative Analysis	Continuously, September to June, full time	Arranged
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.			
At: Graduate Hospital	Neurologic Emergencies	June 9-11, full time	60.00
University of Texas, Postgraduate School of Medicine, 1400 Outer Belt Drive, Houston 25, Texas	Orientation in Psychiatry and Neurology for Practicing Physicians	March, 2 days, full time	To be announced
At: University of Texas, Medical Branch, Galveston	Neurology Conference	January 9-10, full time	10.00
	Psychiatry Conference	February 8-10, full time	15.00
University of Utah College of Medicine, 175 East 21st South, Salt Lake City, Utah	Practical Psychiatry	May, 3 days, full time	30.00
NUTRITION			
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.	Nutrition	March 16-June 13, part time	35.00
OBSTETRICS AND GYNECOLOGY			
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Gynecology	Once weekly, March 25-May 27, part time	30.00
University of Colorado School of Medicine, 4200 E. Ninth Ave., Denver, Colo.	Postgraduate Course in Obstetrics and Gynecology	April 10-11, full time	10.00 per day 5.00 regis. fee
George Washington University School of Medicine, Washington, D. C.			
At: University Hospital, Washington, D. C.	Obstetrics and Gynecology	March 9-13, full time	75.00
Office of the Surgeon General, Education and Training Division, Washington 25, D. C.			
At: Brooke Army Hospital, Fort Sam Houston, Texas	Seminar in Obstetrics and Gynecology	April 1-4, full time	None [30,31,32,33]
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Personal Course in General and Office Obstetrics	Dates to be announced	100.00
	Personal Course in Surgical Obstetrics	Dates to be announced	100.00
	Two-Week Intensive Course in Obstetrics	March 3, 30, June 8, full time	150.00
	Personal Course in Gynecologic Surgery	January 8, February 4, April 1, May 14, part time	100.00
	Personal Course in Office Gynecology	January 7, February 4, April 1, May 13, part time	100.00
	One-Week Course in Vaginal Approach to Pelvic Surgery	March 2, 30, May 4, June 8, full time	100.00
	Two-Week Intensive Course in Gynecology	February 15, March 16, April 20, June 15, full time	150.00
University of Iowa College of Medicine, Iowa City, Iowa			
At: University of Iowa Hospital	Newer Trends in Obstetrics and Gynecology	March, 2 days, full time	5.00
Johns Hopkins University School of Medicine, 710 North Washington St., Baltimore, Md.			
At: Johns Hopkins Hospital	Gynecological Pathology	October 1, December 1, February 1, 8 days, full time	None
University of Maryland School of Medicine, 29 S. Greene St., Baltimore 1, Md.	Obstetrics and Gynecology	Arranged, 12 weeks, full time	150.00
	Gynecology, Oncology and Female Urology	Arranged, 10 weeks, full time	125.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass.			
At: Free Hospital for Women, Brookline	Pathology of Obstetrics and Gynecology	January 8-May 14, part time	150.00
	Gynecology 2	June and July, full time	150.00
At: Boston Lying-in Hospital	Clinical Obstetrics	April and May, full time	150.00
University of Michigan Medical School, Ann Arbor, Mich.			
At: Maternity Hospital	Obstetrics	January 21-24, full time	50.00
	Gynecology	February 25-28, full time	50.00
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Obstetrics for General Physicians	March 23-25, full time	25.00
Columbia University, 630 W. 168th St., New York 32, N. Y.			
At: Margaret Hague Maternity Hospital, Jersey City, N. J.	Internship Training (Obstetrics PM 80)	First of each month for 3 months, full time	350.00
	Observation Course (Obstetrics PM 81)	First of each month, for 1 month, full time	100.00

References will be found on page 1530.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1953, to July 15, 1953—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
OBSTETRICS AND GYNECOLOGY—Continued			
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, N. Y. At: Kings County Hospital	Gynecological Cancer	April, twice weekly, 6 weeks, part time	$30.00
At: State University of New York College of Medicine, Brooklyn	Manikin	April, twice weekly, 8 weeks, part time	30.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Advanced Course in Fallopian Tube Physiology, Pathology, Diagnosis and Treatment	February, June, October, part time	150.00
	Advanced Course in Culdoscopy in Sterility	February June, October, part time	150.00
	General Fertility and Sterility	February, May, October, 2 weeks, full time	200.00
	Advanced Course in Operative (Reparative and Restorative) Gynecology in Sterility	February, June, October, 2 weeks, part time	150.00
	Advanced Course in Semen and Semen Analysis	February, June, October	75.00
	Advanced Course in Endometrial Biopsy and Ovulation	February, June, October, 2 weeks, part time	150.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Obstetrics and Gynecology including manikin obst. and operative gyn. (Cadaver)	April, 2 months, full time	250.00
	Manikin Obstetrics	Arranged, 4 weeks, part time	150.00
	Clinical and Operative (Cadaver) Gynecology	Arranged, 6 weeks, part time	175.00
	Clinical Course in Office and General Obstetrics	Arranged, 4 weeks, part time	100.00
	Clinical Gynecology	Arranged, 6 weeks, part time	75.00
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	561-B Seminar in Gynecology	April 13-May 9, full time	150.00
	562-B Gynecology: Diagnosis and Office Treatment	February 23-March 16, part time	50.00
	563-B Gynecology: Diagnosis and Office Treatment	March 23-April 24, part time	75.00
	566-B Cystoscopy and Endoscopy	March 23-April 24, part time	75.00
	567-B Gynecological Endocrinology	April 14-June 6, part time	125.00
	568-B Vaginal Cytology (for Specialists)	April 14-June 4, part time	100.00
	569-B Surgical Anatomy as Applied to Gynecology: Cadaver	February 24-March 21, part time	175.00
Southern Pediatric Seminar, Saluda, N. C.	Obstetrics and Gynecology	July 27-August 1, full time	25.00
University of Oregon Medical School, 3181 S. W. Sam Jackson Park Road, Portland 1, Ore.	Obstetrics	January 26-28, full time	30.00
University of Texas, Postgraduate School of Medicine, 1400 Outer Belt Drive, Houston 25, Texas At: University of Texas, Medical Branch, Galveston	Obstetrics Conference	April 13-17, full time	25.00
University of Utah College of Medicine, 175 East 21st South, Salt Lake City, Utah	Office Gynecology	April, full time	20.00
University of Vermont College of Medicine, Burlington, Vt. At: Mary Fletcher Hospital	Obstetrics	Weekly, 1 hour, all year	None
OPHTHALMOLOGY AND OTOLARYNGOLOGY			
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Otolaryngology	Once weekly, February 10-March 31, part time	30.00
	Histology and Histopathology of the Eye	Once weekly, February 25-June 3, part time	60.00
Research Study Club of Los Angeles, Los Angeles, Calif. At: Elk's Club	Annual Clinical Convention in Ophthalmology and Otolaryngology	January 19-30, full time	100.00
Stanford University School of Medicine, 2398 Sacramento St., San Francisco 15, Calif.	Spring Postgraduate Conference in Ophthalmology	Middle of March, 5 days, full time	75.00
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Two-Week Clinical Course in Ophthalmology	1st of every week, full time	50.00
	Two-Week Clinical Course in Otolaryngology	1st of every week, full time	50.00
University of Illinois College of Medicine, 1853 W. Polk St., Chicago 12, Ill.	Bronchoesophagology	Spring, full time	150.00
	Postgraduate Course in Ophthalmology	July 1-December 31, full time	500.00
Indiana University School of Medicine, Indianapolis, Ind.	Clinical and Anatomical Course in Otorhinolaryngology	March 30-April 11, 2 weeks, full time	250.00
University of Iowa College of Medicine, Iowa City, Iowa At: University of Iowa Hospital	Retinal Disease	March 30-31, full time	50.00
	Ophthalmology	First Wednesday of each month, full time	None
University of Kansas Medical Center, 39th and Rainbow Blvd., Kansas City, Kan.[3]	Ophthalmology and Otolaryngology	April 6-10, full time	35.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: Harvard Medical School and Massachusetts Eye and Ear Infirmary	Clinical Ophthalmology and Ocular Pathology	January 5-February 7, full time	150.00
	Fundamentals in Refraction and Ocular Motility	February 9-March 7, full time	150.00
	Audiology	February 2-14, full time	125.00
	Anatomy of the Temporal Bone	February 16-March 28, full time	300.00
Ophthalmologic Study Council, 243 Charles St., Boston, Mass. At: Harvard Medical School, 25 Shattuck St., Boston, Mass.	I Basic Clinical and Ocular Pathology III Fundamentals in Refraction and Ocular Motility	January 4 through February, 8 weeks, full time	150.00 each month
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston, Mass.[4] At: Boston City Hospital	Neuro-Ophthalmology	March 23-27, full time	80.00
University of Michigan Medical School, Ann Arbor, Mich. At: University Hospital	Ophthalmology	April 20-22, full time	50.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich. At: Kresge Eye Institute and Hospitals, Detroit	Basic Ophthalmology	Every September, 9 months, full time	900.00
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Ophthalmology for Specialists	January 19-24, full time	40.00
Washington University School of Medicine, 640 Kingshighway Blvd., St. Louis 10, Mo.	Basic Course in Ophthalmology	September 15, 1952-June 15, 1953	800.00

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Postgraduate Continuation Courses for Physicians—Jan. 1, 1953, to July 15, 1953—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued			
Columbia University, 630 W. 168th St., New York 32, N. Y. At: Columbia Presbyterian Medical Center	Bronchoscopy (Otolaryngology PM 1)	April 6-24, part time	$250.00
At: Mt. Sinai Hospital	Symposium in Ophthalmology (Ophthalmology PM 43)	April 27-May 23, full time	385.00
	Refraction (Ophthalmology PM 44)	April 27-May 1, part time	45.00
	Muscles (Ophthalmology PM 45)	April 27-May 2, part time	40.00
	Physiological Optics (Ophthalmology PM 46)	May 4-8, part time	40.00
	Histopathology of the Eye (Ophthalmology PM 47)	May 4-8, full time	50.00
	Bacteriology and External Diseases of the Eye (Ophthalmology PM 48)	May 4-8, part time	40.00
	Medical Ophthalmology (Ophthalmology PM 49)	May 5-9, part time	25.00
	Ophthalmoscopy (Ophthalmology PM 50)	May 11-15, part time	40.00
	Glaucoma (Ophthalmology PM 51)	May 12-16, part time	25.00
	Slit Lamp Microscopy (Ophthalmology PM 52)	May 11-15, part time	25.00
	Embryology of the Eye (Ophthalmology PM 53)	May 11-15, part time	40.00
	Neuro-Ophthalmology (Ophthalmology PM 54)	May 18-22, part time	25.00
	Ophthalmic Surgery (Ophthalmology PM 55)	May 18-23, part time	90.00
At: Montefiore Hospital	Elementary Ophthalmoscopy (Ophthalmology PM 60)	January 5-March 2, part time	30.00
	Perimetry (Ophthalmology PM 61)	April 6-May 18, part time	30.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, N. Y. At: Jewish Hospital	External Eye Diseases	April, once weekly, 8 weeks, part time	20.00
New York Eye and Ear Infirmary, 218 Second Ave., New York, N. Y.	Clinical Physio-Pathology of the Ear	Arranged, twice weekly, part time	150.00
	Resuscitation	Arranged, 2 days, part time	50.00
	Didactic and Operative Work in Rhinoplasty and Otoplasty	Arranged, 4 days, weekly, part time	250.00
	The Conservative Management of Acute Sinusitis and Chronic Rhinitis	May, November, December, part time	75.00
	Rehabilitation of the Hard of Hearing	Arranged, twice weekly, part time	75.00
	Allergy of the Eyes and Upper Respiratory Tract	January and March, part time	150.00
	Broncho-Esophagology and Laryngeal Surgery	February, April, June, October, part time	250.00
	Clinical Histopathology of the Eye	January, November, part time	75.00
	Neuro-Ophthalmology	January, February, March, part time	75.00
	Roentgenology	Arranged, 1 week, part time	50.00
	Perimetry	February, May, and November, part time	75.00
	Refraction	January, May, October, 8 weeks, part time	100.00
	Operative Eye Surgery	Arranged, 4 weeks, part time	150.00
	Glaucoma	January, May, October, 8 weeks, part time	75.00
	Indirect Ophthalmoscopy	Arranged, 4 weeks, part time	75.00
	Ophthalmoscopy	January, April, November, part time	75.00
	Slit Lamp Microscopy	February, May, November, part time	100.00
	Anomalies of Extraocular Muscles	April, June, part time	75.00
	Plastic Eye Surgery	Arranged, 4 weeks, part time	150.00
	Physiological Optics in Clinical Practice	Arranged, 6 weeks, part time	100.00
	External Diseases of the Eye	February, April, May, and November, 4 weeks, part time	75.00
	Histopathology of the Eye	May 18-23, part time	100.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Otolaryngology and Ophthalmology	October 1, 9 months, full time	1,000.00
	Otolaryngology and Ophthalmology Including Cadaver EENT and Refraction	January, April, full time	600.00
	Refraction	Arranged, 4 weeks, part time	100.00
	Advanced Otology	Arranged, 2 weeks, part time	250.00
	Ophthalmology Including Cadaver Ophthalmology and Refraction	Arranged, 3 months, part time	300.00
	Motor Anomalies	Arranged, 4 weeks, part time	50.00
	Operative Ophthalmology	Arranged, 4 weeks, part time	100.00
	Operative Nose and Throat (Dissection)	Arranged, 4 weeks, part time	100.00
	Seminar in Ophthalmology and Otolaryngology	Arranged, 5 days, full time	50.00
	Clinical Ophthalmology	Arranged, 6 weeks or 3 months, part time	75.00 [23]
	Clinical Otolaryngology	Arranged, 6 weeks or 3 months, part time	100.00 [24]
	Clinical Ophthalmology and Otolaryngology	Arranged, 6 weeks or 3 months, part time	150.00 [25]
	Surgical Anatomy of Nose and Accessory Sinuses	Arranged, 4 weeks, part time	150.00
	Operative Otology (Cadaver)	Arranged, 4 weeks, part time	100.00
	Head and Neck Dissection	Arranged, 4 weeks, part time	150.00
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	5713-A Ocular Therapeutics	July 20-24, part time	50.00
	571-A Motor Anomalies of the Eye (Part I) for Specialists	March 9-14, full time	90.00
	572-A Motor Anomalies of the Eye (Part II)	March 16-20, full time	75.00
	573-A Ophthalmic Plastic Surgery (for Specialists)	March 30-April 3, part time	75.00
	574-B Surgery of the Eye (for Specialists)	March 23-28, full time	100.00
	575-B Differential Diagnosis with the Slit Lamp	February 23-27, part time	75.00

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Postgraduate Continuation Courses for Physicians—Jan. 1, 1953, to July 15, 1953—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
OPHTHALMOLOGY AND OTOLARYNGOLOGY—Continued			
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	578-B Ocular Expressions of Systemic Disease	February 23-27, part time	$50.00
	579-B Neuro-Ophthalmology	January 19-23, part time	50.00
	579-A Neuro-Ophthalmology	July 13-17, part time	50.00
	5710-A Perimetry	July 13-17, part time	50.00
	5710-B Perimetry	January 19-23, part time	50.00
	5711-A Ophthalmoscopy	July 20-24, part time	50.00
	5711-B Ophthalmoscopy	January 26-30, part time	50.00
	5713-B Ocular Therapeutics	January 26-30, part time	50.00
	594-B Endaural Surgery	February 9-20, full time	150.00
	595-A Advanced Bronchoesophagology and Laryngology	January 19-23, full time	100.00
	5910-A Surgery of the Head and Neck	January 5-16, full time	200.00
University of Cincinnati College of Medicine, Eden and Bethesda Aves., Cincinnati 19, Ohio	Graduate Convention in Otology, Rhinology and Laryngology	April 13-18, full time	125.00
Oregon Academy of Ophthalmology and Otolaryngology, Portland, Ore. At: University of Oregon Medical School	Postgraduate Convention	March 23-27, part time	50.00 half week 75.00 full week
University of Oregon Medical School, 3181 S. W. Sam Jackson Park Road, Portland 1, Ore.	Ophthalmology and Otolaryngology	March 23-27, full time	75.00
University of Texas, Postgraduate School of Medicine, 207-A Hermann Professional Bldg., Houston 25, Texas At: Shannon West Texas Memorial Hospital, San Angelo, Texas	Common Diseases of the Eyes, Ears, Nose and Throat	Spring, part time	10.00
Gill Memorial Eye, Ear and Throat Hospital, 711 S. Jefferson St., Roanoke, Va.	Twenty-Sixth Annual Spring Congress in Ophthalmology and Otolaryngology	April 6-11, full time	75.00
ORTHOPEDIC SURGERY			
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Minor Orthopedic Surgery	Once weekly, April 16-June 4, part time	30.00
	Diseases and Injuries of Bones and Joints	July 6-31, full time	100.00
Tulane University School of Medicine, 1430 Tulane Ave., New Orleans, La.	Seminar on Low Back Pains	February 27-28, full time	25.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: Children's Hospital	Orthopedic Surgery 1	By arrangement, full time	800.00
At: Massachusetts General Hospital	Orthopedic Surgery 2	By arrangement, full time	800.00
At: Children's Hospital and Massachusetts General Hospital	Orthopedic Surgery 3	By arrangement, full time	200.00
Columbia University, 630 W. 168th St., New York 32, N. Y. At: Hospital for Joint Diseases	Survey of the Essentials of Orthopedics (Orthopedic Surgery PM 80)	March 16-28, part time	100.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Fractures and Allied Trauma	Fall, 4 weeks, full time	200.00
	Orthopedics in General Practice	April, 6 weeks, part time	60.00
	Orthopedics of the Foot	Arranged, 8 weeks, part time	100.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Orthopedic Surgery for General Surgeons	Arranged, 3 months, part time	75.00
	Operative Orthopedics (Dissection)	Arranged, 5 periods, part time	100.00
	Advanced Orthopedics of the Foot	Arranged, 8 periods, part time	100.00
New York University Post-Graduate Medical School, 477 First Ave., New York 19, N. Y.	581-A Basic Sciences as Related to Orthopedic Surgery	January 5-June 19, full time	450.00
	582-B Orthopedics in General Practice	June 15-19, full time	75.00
	583-A Anatomy for Orthopedic Surgeons	January 5-9, full time	90.00
PATHOLOGY			
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	General and Surgical Pathology	Twice weekly, September 30-June 4, part time	175.00
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	12-Month Department Course in Gross and Surgical Pathology	By appointment, full time	900.00
	12-Month Course in Gross and Microscopic Pathology	By appointment, full time	500.00
	Six-Month Clinical Course in Gross and Surgical Pathology	By appointment, full time	500.00
	Personal Course in Surgical Pathology on Selective Subjects	By appointment, 1 or 2 weeks, full time	15.00 per hour
	Personal Course in Surgical Pathology	By appointment, every month, 2 or 4 weeks, full time	150.00 two weeks
	Personal Course in Surgical Pathology and Laboratory Medicine	March 25, ten Wednesdays, part time	100.00
University of Kansas Medical Center, 39th and Rainbow Blvd., Kansas City, Kan.[3]	Exfoliative Cytologic Diagnosis	March 16-17, full time	None
University of Maryland School of Medicine, 29 S. Greene St., Baltimore 1, Md	Neuropathology	Arranged	200.00 plus 10.00 lab. fee
	Pathology	Arranged. 6 months, full time	150.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: Free Hospital for Women, Brookline	Pathology of Obstetrics and Gynecology	January 8-May 14, part time	150.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.	Pathology of Neoplasms	March 16-June 13, part time	50.00
Columbia University, 630 W. 168th St., New York 32, N. Y. At: Mt. Sinai Hospital	Surgical Pathology (Pathology PM 31)	January 31-May 9, part time	100.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, N. Y. At: State University of New York College of Medicine, Brooklyn	Gynecological and Obstetrical Pathology	March, once weekly, 10 weeks, part time	100.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Pathology	Arranged, 16 weeks, part time	200.00
	Clinical Pathology	To be arranged, part time	100.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Surgical Pathology	Arranged, 3 months, part time	300.00
	Urological Pathology	Arranged, 3 months, part time	50.00
	Blood Transfusions	Arranged, 2 weeks, part time	100.00
	Pathology	Arranged, 3 months, part time	300.00
	Pathology	Arranged, 12 months, part time	1,000.00
	Pathology for Surgeons	Arranged, 1 month, part time	100.00

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Postgraduate Continuation Courses for Physicians—Jan. 1, 1953, to July 15, 1953—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
PATHOLOGY—Continued			
New York University Post-Graduate Medical School, 477 First Ave., New York 19, N. Y.	441-B Gynecological Pathology	January 20-March 17, part time	$100.00
	442-B Surgical Pathology (for Specialists)	March 17-June 25, part time	200.00
	444-A Special Pathology for Surgeons	January 8-June 18, part time	125.00
Baylor University College of Medicine, 1200 M. D. Anderson Blvd., Houston 1, Texas	Obsterical and Gynecological Pathology [2]	Twice weekly, April 2-June 2, part time	10.00
PEDIATRICS			
University of Colorado School of Medicine, 4200 E. Ninth St., Denver, Colo.	Medical and Surgical Problems of Newborn and Premature Infants	March 25-27, full time	10.00 per day 5.00 regis. fee
Office of the Surgeon General, Education and Training Division, Washington 25, D. C. At: Brooke Army Hospital, Fort Sam Houston, Texas	Seminar in Pediatrics	March 16-20, full time	None [30,31,32,33]
Cook County Gradute School of Medicine, 707 S. Wood St., Chicago 12, Ill.	12-Month Course in Pediatrics	July 1, full time	750.00
	Personal Course in Pediatrics	March 18, ten Wednesdays, part time	100.00
	Two-Week Intensive Course in Pediatrics	April 6, full time	100.00
	Two-Week Personal Course in Cerebral Palsy	June 15, full time	150.00
	Diagnosis and Treatment of Congenital and Rheumatic Heart Disease in Infants and Children	March 4, twelve Wednesdays, part time	100.00
University of Kansas Medical Center, 39th and Rainbow Blvd., Kansas City, Kan.	Pediatrics [3]	January 26-28, full time	25.00
Tulane University School of Medicine, 1430 Tulane Ave., New Orleans, La. At: Huey P. Long Charity Hospital, Pineville	Pediatrics	February 23-28, full time	50.00
	Maternal and Infant Care	April 13-17, full time	50.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 25, Mass. At: Children's Hospital	Pediatrics 2	January 5-April 24, full time	500.00
At: Massachusetts General Hospital	Pediatrics 3	June 8-19, full time	125.00
	Clinical Aspects of Endocrine and Metabolic Disorders in Children and Adolescents	April 16-18, full time	45.00
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Pediatric Neurology for Pediatricians, Neurologists, and General Physicians	January 26-31, full time	40.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Pediatric Allergy Course II	First 2 weeks in May, full time	200.00
	Clinical Pediatrics	Continuously, 1, 3, 6, 9, and 12 months	..... [27]
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Pediatrics	Arranged, 4 weeks, part time	75.00
New York University Post-Graduate Medical School, 477 First Ave., New York 19, N. Y.	613-A Pediatric Refresher Course	January 19-31, full time	100.00
	614-B Review of Clinical Pediatrics	March 9-14, full time	50.00
	615-A Practical Pediatric Endocrinology	April 2-June 4, part time	50.00
	616-A Pediatric Allergy	April 7-June 9, part time	60.00
	617-A Communicable Diseases	January 12-16, full time	50.00
	619-A Pediatric Cardiology	April 1-June 3, part time	60.00
Southern Pediatric Seminar, Saluda, N. C.	Pediatrics	July 13-25, full time	45.00
University of Oregon Medical School, 3181 S. W. Sam Jackson Park Road, Portland 1, Ore.	Pediatrics	February 16-18, full time	30.00
St. Christopher's Hospital for Children, 2600 N. Lawrence St., Philadelphia 33, Pa.	Pediatrics for General Practitioners	November 6 to March 26, part time	50.00
University of Pennsylvania, Graduate School of Medicine, Philadelphia 4, Pa.	Management of the More Common Lesions of the Musculo-Skeletal System in Children [2]	April 21-23, full time	60.00
University of Tennessee College of Medicine, 874 Union Ave., Memphis 3, Tenn.	Pediatrics [26]	Continuously	50.00
Baylor University College of Medicine, 1200 M. D. Anderson Blvd., Houston, Texas	Pediatric Postgraduate Seminar	April 13-17, part time	None
University of Vermont College of Medicine, Burlington, Vt. At: Mary Fletcher Hospital	Pediatrics	Weekly, 1 hour, all year	None
University of Virginia School of Medicine, Charlottesville, Va.	Problems of Infancy in General Practice	January 16, full time	None
PHARMACOLOGY			
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Recent Advances in the Pharmacology of Anesthetic Agents	March 24-26, full time	60.00
PHYSICAL MEDICINE AND REHABILITATION			
University of California, University Extension School of Medicine, 405 Hilgard Ave., Los Angeles 24, Calif.	Physical Medicine and Rehabilitation	March 30-April 3, full time	50.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Physical Medicine and Rehabilitation	Arranged, 4 weeks, part time	100.00
New York University Post-Graduate Medical School, 477 First Ave., New York 19, N. Y.	738-B Physical Medicine and Rehabilitation	January 12-October 10, full time	700.00
	7310-B Physical Medicine and Rehabilitation	January 12-February 6, full time	100.00
	7311-A Physical Medicine and Rehabilitation	July 13-24, full time	75.00
	7312-B Seminar on the Rehabilitation of Children	January 19-23, full time	40.00
	7312-C Seminar on the Rehabilitation of Children	April 20-24, full time	40.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Physical Medicine and Rehabilitation	February 17-19, full time	60.00
PHYSIOLOGICAL CHEMISTRY			
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Physiological Chemistry Clinical Application	May 25-28, full time	70.00
	Physiological Chemistry Clinical Application	June 8-9, full time	40.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.	Seminar in Physiological Chemistry	Every quarter, part time	15.00

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Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	PHYSIOLOGY		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Surgical Physiology	Once weekly, October 2-June 4, part time	$75.00
San Diego County Hospital and Mercy Hospital, San Diego, Calif.	Physiology	October-August, part time	None [1]
George Washington University School of Medicine, Washington, D. C. At: University Hospital, Washington, D. C.	Surgical Physiology	February 23-27, full time	75.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.	Survey of Physiology	March 8-June 13, part time	15.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Nutrition	Arranged, 1 month, part time	150.00
	Physiology of the Cardio-Vascular System and Blood	Arranged, 1 month, part time	75.00
	Physiology of Respiration	Arranged, 1 month, part time	75.00
	Physiology of the Nervous System	Arranged, 2 weeks, part time	50.00
	Physiology of the Special Senses	Arranged, 1 month, part time	75.00
	Physiology of the Endocrine System	Arranged, 1 month, part time	75.00
	Physiology and Chemistry of the Gastrointestinal Tract Digestion	Arranged, 1 month, part time	150.00
	Applied Physiology	To be arranged, part time	300.00
	Newer Concepts of the Physiology and Biochemistry of Cancer	Arranged, 6 weeks, part time	150.00
New York University Post-Graduate Medical School, 477 First Ave., New York 21, N. Y.	545-A Normal and Pathological Physiology: Functional and Chemical Aspects	April 15-June 3, part time	40.00
	5420-B Normal and Pathological Physiology: Functional and Chemical Aspects	February 23-March 6, full time	100.00
	POLIOMYELITIS		
Massachusetts Infantile Paralysis Clinics of the Children's Hospital, 300 Longwood Ave., Boston, Mass.	Poliomyelitis	June and August, 5 days, full time	50.00
National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y. At: Georgia Warm Springs Foundation, Warm Springs, Ga.	Care of Acute and Convalescent Poliomyelitis	January, April, October, 5 days, full time	None
D. T. Watson School of Physiatrics, Leetsdale, Pa.[84]	Management of Acute Poliomyelitis with Emphasis on Prescription of the Respirator and Rocking Bed	May, 5 days, full time	10.00
University of Utah College of Medicine, 175 East 21st South, Salt Lake City, Utah	Poliomyelitis	May 22-23, full time	20.00
	PROCTOLOGY		
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Proctology	Once weekly, January 8-March 12, part time	50.00
University of California, University Extension, School of Medicine, 405 Hilgard Ave., Los Angeles 24, Calif. At: Veterans Administration Hospital, Los Angeles	Office Proctology	March, 3 days, full time	50.00
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Lecture and Cadaver Course in Proctology	January 28, five Wednesdays, part time	100.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston, Mass.[4] At: Boston Dispensary, Boston, Mt. Auburn Hospital, Cambridge	Proctology II	May 4-29, full time	255.00
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Proctology for General Physicians	April 6-11, full time	40.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, N. Y. At: Jewish Hospital	Proctology	April, twice weekly, 6 weeks, part time	40.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, New York	Proctology, Gastroenterology, Operative Proctology (Dissection)	January, April, part time	200.00
	Clinical Proctology and Gastroenterology	January, April, part time	100.00
	Clinical Proctology	Arranged, 6 weeks, part time	75.00
	Clinical and Cadaver Proctology	Arranged, 6 weeks, part time	175.00
	Clinical Gastroenterology	Arranged, 6 weeks, part time	75.00
University of Cincinnati College of Medicine, Eden and Bethesda Ave., Cincinnati 19, Ohio	Rectal Diseases in General Practice	January 18, 1 day, full time	10.00
	PUBLIC HEALTH		
U. S. Public Health Service, Communicable Disease Center, Atlanta, Ga.	Laboratory Diagnostic Methods in Veterinary Mycology	January 5-9, full time	None
	Laboratory Diagnosis of Bacterial Diseases, Part I, General Bacteriology	January 26-February 6, full time	None
	Laboratory Diagnosis of Parasitic Diseases, Part I, Intestinal Parasites	January 26-February 20, full time	None
	Laboratory Diagnosis of Bacterial Diseases, Part 2, General Bacteriology	February 9-20, full time	None
	Laboratory Diagnosis of Bacterial Diseases, Enteric Bacteriology	February 24-March 6, full time	None
	Laboratory Diagnosis of Virus Diseases	March 16-27, full time	None
	Laboratory Diagnosis of Parasitic Diseases, Part 2, Blood Parasites	February 24-March 13, full time	None
	Laboratory Methods in Medical Mycology, Part I, Cutaneous Fungi	March 16-27, full time	None
	Laboratory Methods in Medical Mycology, Part 2, Subcutaneous and Systemic Fungi	March 30-April 10, full time	None
	Laboratory Diagnosis of Bacterial Diseases	April 6-10, full time	None
	Laboratory Diagnosis of Parasitic Diseases	April 13-17, full time	None
	Laboratory Diagnosis of Rabies	April 13-17, full time	None
Columbia University School of Public Health, 600 W. 168th St., New York 32, N. Y.	Occupational Medicine 202, the Occupational Diseases	February 2-March 28, part time	20.00
	Parasitology 202, Parasitic Diseases	March 30-May 23, part time	40.00
	Occupational Medicine 203, Industrial Medical Organization	March 30-May 23, part time	20.00

References will be found on page 1530.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1953, to July 15, 1953—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
PUBLIC HEALTH—Continued			
New York State Department of Health, Albany, N. Y.[28] At: Albany, Syracuse, Rochester, Buffalo, and Poughkeepsie	Extension Course in Public Health	Continuously, 6 days, part time	$25.00
University of Pittsburgh, Graduate School of Public Health, Pittsburgh 13, Pa.	Public Health Practice, Occupational Health, Hospital Administration	September to June, full time	700.00
RADIOLOGY			
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Roentgenology	Once a week, 32 weeks, part time	100.00
University of Southern California School of Medicine, Medical Extension, 1200 N. State St., Los Angeles 33, Calif. At: Los Angeles County General Hospital	882 Essential Physics of Radiology	Annually, 12 weeks, part time	50.00
	12-Month Course in Diagnostic Radiology and X-Ray Therapy	By appointment, full time	750.00
	8-Month Course in Diagnostic Roentgenology	By appointment, full time	500.00
	Two-Week Clinical and Didactice Course in Diagnostic Roentgenology and Fluoroscopy	1st Monday of each month, full time	125.00
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Routine Clinical Course in Diagnostic Roentgenology and Fluoroscopy	3d Monday of every month, 2 weeks, full time	70.00
	High and Low Voltage X-Ray Therapy	1st of every week, 1 or more weeks, full time	60.00
	Intensive Review Course in Radiation Physics	Dates to be announced	50.00
	Diagnostic Roentgenology	April 1, ten Wednesdays, part time	100.00
	X-Ray Interpretation	February 4, ten Wednesdays, part time	100.00
University of Kansas Medical Center, 39th and Rainbow Blvd., Kansas City, Kan.[3]	Radiology	February 16-18, full time	25.00
	Diagnostic X-Ray and Fluoroscopy	March 19-April 23, full time	25.00
	Roentgenological Physics	Once a week, February and March, part time	25.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: Peter Bent Brigham Hospital	General Radiology 1	By arrangement, full time	150.00
At: Massachusetts General Hospital	General Radiology 2	By arrangement, monthly, full time	150.00
At: Boston City Hospital	General Radiology 3	By arrangement, monthly, full time	150.00
At: Children's Hospital	Pediatric Radiology	By arrangement, monthly, full time	150.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston, Mass.[4] At: Pratt Diagnostic Clinic	Selected Chapters of Chest Radiology	April 22-24, full time	35.00
University of Michigan Medical School, Ann Arbor, Mich. At: University Hospital	Diagnostic Roentgenology	April 6-10, full time	50.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.	Medical X-Ray Conference	Every quarter, part time	15.00
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Radiology for General Physicians	April 16-18, full time	25.00
Columbia University, 630 W. 168th St., New York 32, N. Y. At: Columbia-Presbyterian Medical Center	Radiological Physics (Radiology PM 1)	January 13-April 17, part time	25.00
At: Mt. Sinai Hospital	Pitfalls in Roentgen Diagnosis of Lesions of the Gastrointestinal Tract (Radiology PM 32)	March 16-27, part time	15.00
	Radium Therapy (Radiology PM 33)	April 21-June 25, part time	25.00
At: Hospital for Joint Diseases	Roentgenographic Interpretation of the Diseases of Bones and Joints (Radiology PM 80)	March 4-May 20, part time	150.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, N. Y. At: Beth El Hospital	Roentgen Diagnosis in Gastroenterology	April, once weekly, 8 weeks, part time	20.00
At: Jewish Hospital	X-Ray Diagnosis	April, once weekly, 10 weeks, part time	20.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 106th St., New York 29, N. Y.	Diagnostic Roentgenology	Arranged, 6 weeks, part time	150.00
	Radium and Roentgen Therapy	Arranged, 6 weeks, part time	150.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Roentgen, Interpretation and Technic	January, April, full time	300.00
	Advanced Diagnosis, Roentgenology, and Radiotherapy	January, April, full time	300.00
	Diagnosis, Roentgenology, and Radiation Therapy	12 months, part time	1,000.00
	Practical Course in Superficial and Deep X-Ray Therapy	Arranged, 4 weeks, part time	100.00
	Advanced Course in Radiotherapy	Arranged, 4 weeks, part time	100.00
New York University Post-Graduate Medical School, 477 First Ave., New York 19, N. Y.	652-B Diagnostic Radiology	February 16-May 8, part time	100.00
	654-A Radiobiology	January 29-June 11, part time	75.00
	656-A Diagnostic Radiology	June 15-19, full time	50.00
Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tenn.	Advanced Course in Radioisotopes in Medicine	July, 2 days, every other year, full time	25.00
	Radioistope Techniques	Six times a year, January, February, March, June, July, and August, 4 days, full time	25.00
SURGERY			
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Operative Surgery	Once a week, April 7-May 26, part time	150.00
University of California, University Extension, School of Medicine, 405 Hilgard Ave., Los Angeles 24, Calif.	Recent Advances in General Surgery	March 2-May 18, part time	50.00
	Surgical Pathology	January 10-February 28, part time	75.00
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Intensive Two-Week Course in Surgical Technic	21 times during year, full time[29]	200.00
	Four-Week Course in Surgical Technic, Clinical Surgery, Surgical Anatomy, Pre- and Postoperative Management	March 2, June 1, full time	300.00
	Two-Week Personal Course in General Surgery	April 20, full time	250.00

References will be found on page 1530.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1953, to July 15, 1953—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	SURGERY—Continued		
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	One-Week Course in Surgery of Colon and Rectum	March 2, April 13, May 11, June 8, full time	$100.00
	Two-Week Course in Surgical Anatomy on the Cadaver, Clinical Surgery, Pre- and Postoperative Management	March 16, June 15, full time	150.00
	One-Week Personal Course in Breast and Thyroid Surgery	June 22, full time	150.00
	Ten-Hour Personal Course in Gallbladder Surgery	April 20, June 29, 3 days, full time	100.00
	Two-Week Intensive Review Course Considering Basic Principles in General Surgery	March 23, full time	200.00
	One-Week Personal Course in Esophageal Surgery	June 22, full time	150.00
	One-Week Personal Course in Thoracic Surgery	June 8, full time	100.00
	Ten-Hour Course in the Treatment of Varicose Veins	Every Monday, 2 days, full time	40.00
	One-Week Personal Course in General Surgery	February 9, May 4, full time	150.00
	Ten-Hour Course in the Treatment of Varicose Veins	Every month, by appointment, part time	40.00
	Practical and Didactic Course in Proctoscopy and Sigmoidoscopy	January 6, February 17, March 17, April 14, May 12, June 16, part time	50.00
	Personal Course in Thoracic Surgery	March 25, ten Wednesdays, part time	100.00
	Personal Course in Surgical Pathology, Gross and Microscopic	March 18, ten Wednesdays, part time	100.00
	Personal Course in Surgical Diagnosis, Pre- and Postoperative Management	April 1, ten Wednesdays, part time	100.00
	Surgical Anatomy on the Cadaver	March 12, ten Thursdays, part time	125.00
	Surgical Technic with Practice	February 11, ten Wednesdays, part time	250.00
University of Kansas Medical Center, 39th and Rainbow Blvd., Kansas City, Kan.[3]	Surgery	January 19-23, full time	50.00
Tulane University School of Medicine, 1430 Tulane Ave., New Orleans, La.	Symposium on Neoplastic Disease	March 12-13, full time	25.00
Harvard Medical School, Courses for Graduates, 25 Shattuck St., Boston 15, Mass. At: Massachusetts General Hospital	Experimental and Clinical Surgery	By arrangement, full time	800.00
Tufts College Medical School, Postgraduate Division, 30 Bennet St., Boston, Mass.[4] At: Pratt Diagnostic Clinic	Traumatic Surgery	April 16-18, full time	35.00
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.	Surgery Seminar	Every quarter, part time	15.00
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Surgery for General Physicians	May 7-9, full time	25.00
Columbia University, 630 W. 168th St., New York 32, N. Y. At: Affiliated Hospitals	Recent Developments in Surgery (Surgery PM 100)	May 11-15, full time	50.00
Joint Committee on Post-Graduate Education, 1313 Bedford Ave., Brooklyn, N. Y. At: Wyckoff Heights Hospital	Practical Aspects of Gastrointestinal Surgery	April, once weekly, 10 weeks, part time	100.00
New York Medical College, Flower and Fifth Ave. Hospitals, 20 E. 100th St., New York 29, N. Y.	Surgical Technique	To be arranged, part time	375.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Surgical Anatomy	Arranged, 2 weeks, part time	150.00
	Combined Surgical Course Including Cadaver Surgery and Gynecology	January, April, full time	350.00
	Clinical Surgery	January, April, full time	100.00
	Clinical and Operative (Cadaver) Surgery	January, April, full time	200.00
	Traumatic Surgery Including General Surgery, Orthopedic Surgery, and Physical Medicine	Arranged, 2 months, part time	200.00
New York University Post-Graduate Medical School, 477 First Ave., New York 19, N. Y.	660-A Anatomy and Physiology of the Autonomic Nervous System and Their Clinical Application	January 19-24, full time	150.00
	661-B Review of General Surgery (for Specialists)	March 30-April 25, full time	300.00
	662-A Basic Problems in Cancer Therapy (for Surgeons)	January 26-February 7, full time	200.00
	667-A Surgery of the Hand	March 23-28, full time	90.00
	668-A Diagnosis and Treatment of Fractures and Dislocations	February 2-14, full time	125.00
	669-A Surgery of Trauma	April 2-June 4, part time	100.00
University of Buffalo School of Medicine, 24 High St., Buffalo 3, N. Y. At: E. J. Meyer Memorial Hospital	Management of Trauma	January 14-15, full time	25.00
University of Cincinnati College of Medicine, Eden and Bethesda Ave., Cincinnati 19, Ohio	Seminar in Minor Surgical Problems	Thursdays, Feb. 19-March 12, full time	10.00
University of Oregon Medical School, 3181 S. W. Sam Jackson Park Road, Portland 1, Ore.	General Surgery	March 2-6, full time	50.00
Jefferson Medical College and Hospital, 1025 Walnut St., Philadelphia 7, Pa.	The Jefferson Graduate Assembly	February 4-6, full time	5.00
University of Pennsylvania Graduate School of Medicine, Philadelphia 4, Pa.	Surgery of the Head and Neck; Chest and Extremities; Abdomen and Pelvis	March 17-19, full time	60.00
University of Texas, Postgraduate School of Medicine, 1400 Outer Belt Drive, Houston 25, Texas At: University of Texas, Temple Division, Scott and White Hospital, and Scott, Brindley Foundation, Temple, Texas	Postgraduate Conference in Surgery	March 9-11, full time	None
At: University of Texas, Medical Branch, Galveston	Traumatic Surgery Conference	February 23-27, full time	25.00
University of Vermont College of Medicine, Burlington, Vt. At: Mary Fletcher Hospital	Surgery	Weekly, 1 hour, all year	None
University of Wisconsin Medical School, Madison 6, Wis. At: University Hospitals, 1300 University Ave., Madison, Wis.	Observation Course in Surgery	Continuously, 30 days, full time	100.00 per month

References will be found on page 1530.

Postgraduate Continuation Courses for Physicians—Jan. 1, 1953, to July 15, 1953—Continued

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
THORACIC SURGERY			
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	Thoracic Surgery	Once weekly, April 15-June 3, part time	$30.00
Office of the Surgeon General, Education and Training Division, Washington 25, D. C.			
At: Fitzsimons Army Hospital, Denver, Colo.	Thoracic Surgery Seminar	March 2-6	None [30,31,32]
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Thoracic Surgery	Arranged, full time	200.00
TROPICAL MEDICINE			
New York University Post-Graduate Medical School, 477 First Ave., New York 19, N. Y.	735-A Tropical Medicine	January 5-February 20, full time	300.00
UROLOGY			
College of Medical Evangelists, 312 N. Boyle Ave., Los Angeles 33, Calif.	General Urology	Once weekly, January 7-March 4, part time	35.00
Cook County Graduate School of Medicine, 707 S. Wood St., Chicago 12, Ill.	Two-Week Intensive Course in Urology	April 13, full time	225.00
University of Iowa College of Medicine, Iowa City, Iowa			
At: University of Iowa Hospital	Urology	Second Wednesday of each month, full time	None
	A Review of Newer Trends in Urology	March, 2 days, full time	5.00
University of Kansas Medical Center, 39th and Rainbow Blvd., Kansas City, Kan.	Diagnostic Urology	January 29-March 5, 1 day a week, full time	25.00
American Urological Association, 102-110 Second Ave., Rochester, Minn.			
At: President Hotel, Kansas City, Kan.	Postgraduate Seminar in Urology	January 11-14, full time	50.00
University of Minnesota Center for Continuation Study, Minneapolis 14, Minn.	Urology for General Physicians	February 5-7, full time	25.00
New York Polyclinic Medical School and Hospital, 345 W. 50th St., New York 19, N. Y.	Urology	October 1, 8 months, full time	800.00
	Instrumental Urology	Arranged, 4 weeks, part time	75.00
	Operative Surgery (Urological) for Specialists	Arranged, 2 months, part time	150.00
American College of Physicians, 4200 Pine St., Philadelphia 4, Pa.			
At: The Frank E. Bunts Educational Institute, Cleveland 6, Ohio	Medical and Surgical Disorders of the Urinary Tract	March 19-20, full time	15.00
University of Vermont College of Medicine, Burlington, Vt.			
At: Mary Fletcher Hospital	Urology	Weekly, 1 hour, all year	None
VENEREAL DISEASE			
United States Public Health Service Medical Center, Hot Springs, Ark.	20th V. D. Postgraduate Course	April 13-17, full time	None
Wayne University College of Medicine, 1512 St. Antoine St., Detroit, Mich.			
At: Social Hygiene Clinic, Detroit	Conference on Venereal Diseases	Every quarter, part time	15.00
Institute for the Study of Venereal Diseases of the University of Pennsylvania, 34th and Locust Sts., Philadelphia	6-Month Intensive Review Course	Arranged, full time	Arranged
	4-Week Intensive Review Course	Arranged, full time	Arranged
	3-Week Intensive Review Course	Arranged, full time	Arranged
	10-Day Refresher Course	Arranged, full time	Arranged

1. $50.00 fee for staff members of Mercy Hospital.

2. Formal basic science course in preparation for specialty board certification.

3. Sponsored jointly by Kansas Medical Society, Kansas State Board of Health, and University of Kansas School of Medicine.

4. Contributing Fund, Bingham Associates Fund of Maine.

5. Basic Science Course leading to the degree of Master of Medical Science in Surgery, Medicine, Obstetrics and Gynecology, Anesthesiology, Otolaryngology, Pediatrics, Radiology, Urology.

6. For Cleveland area physicians. $40.00 outside Cleveland area.

7. Also sponsored by Vermont State Medical Society, Vermont Heart Association.

8. Also sponsored by Marquette University School of Medicine and Wisconsin Chapter, American Academy of General Practice.

9. Also sponsored by the Laennec Society of Philadelphia.

10. Residents of Illinois, nonresidents $150.00, doctors $200.00.

11. January 5, January 19, February 2, February 16, March 2, March 16, March 30, April 27, May 18, June 8, June 22.

12. One week, $100.00 two weeks

13. Also sponsored by the Mississippi Academy of General Practice and University of Mississippi Medical School.

14. Sponsoring agencies, Medical College of Alabama, Black Belt Postgraduate Seminar, and Marion County Medical Association.

15. Also sponsored by the Weld County Medical Society.

16. Also sponsored by the Wyoming Chapter of American Academy of General Practice.

17. Sponsored by Michigan State Medical Society, Wayne University College of Medicine, Michigan Department of Health.

18. Also sponsored by the North Carolina Medical Society.

19. Members of American Academy of General Practice or Southwestern Ohio Society of General Practice, $25.00 season ticket, non-members $15.00.

20. Sponsored jointly with the Washington Academy of General Practice.

21. Also sponsored by The Joint Committee of State Mental Hospitals, Hartford, Conn.

22. Sponsored by Massachusetts Department of Mental Health of Massachusetts, Inc., in cooperation with the Metropolitan State Hospital, Walter E. Fernald State School.

23. 6 weeks, 3 months $100.00.

24. 6 weeks, 3 months $150.00.

25. 6 weeks, 3 months $250.00.

26. Limited to one physician at a time.

27. 1 month $150.00. 3 months $250.00. 6 months $450.00. 9 months $650.00. 12 months $850.00.

28. Also sponsored by Albany Medical College, Albany, N. Y.

29. January 19, February 2, February 16, March 2, March 30, April 13, April 27, May 11, June 1, June 15.

30. Attendance is encouraged from Regular, Reserve or National Guard Medical officers of the Armed Forces on active duty, at Government expense. Attendance will be considered on space available basis and at the individual's own expense in the following priority:

a. Medical officers of the Armed Forces not on active duty;

b. Physicians and surgeons from other Federal agencies;

c. Civilian physicians.

31. Application procedure. Applications should be forwarded so as to reach the addressees listed below not later than six weeks prior to the opening date of the course:

a. Applications from Army Medical officers on active duty and full-time Civil Service physicians on duty at Army installations will be forwarded to the Office of the Surgeon General, Department of the Army, Washington 25, D. C., ATTENTION: Personnel Division, Career Management Branch.

b. Applications from Army Reserve medical officers not currently on active duty will be forwarded through channels to the Army Area Commander.

c. Applications from National Guard Medical officers not currently on active duty will be forwarded through channels to the National Guard Bureau, Washington 25, D. C.

d. Applications from Medical officers from other Branches of the Armed Forces should be forwarded through regularly established channels.

e. All other applications should be forwarded to the Hospital Commander of the installation offering the course.

32. For board certified and/or board qualified Chiefs or Assistant Chiefs of Services or officers well advanced in the study of this specialty.

33. Officers partially qualified in the specialty or officers responsible for medical treatment in this specialty or the General Practitioner.

34. January 13, Lake Delton, January 14, Sparta, January 15, Eau Claire, February 10, Lancaster, February 11, Janesville, February 12, Fond du Lac, March 24, Beaver Dam, March 25, Marshfield, March 26, Neenah, April 14, West Bend, April 15, Shawano, April 16, Stevens Point, May 13, Delavan, May 14, Sheboygan, May 15, Green Bay, June 24, Resort near Hayward, June 25, Minocqua.

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Am. J. Diseases Children, Chicago

84:291-408 (Sept.) 1952

*Endocardial Sclerosis. R. W. Blumberg and R. A. Lyon.—p. 291.
Ineffectiveness of Carob Flour in Infantile Diarrhea. S. H. Walker. —p. 309.
Lead Poisoning: Observations in 14 Cases. R. C. Giannattasio, A. V. Bedo and M. J. Pirozzi.—p. 316.
Values for Fecal Urobilinogen in Childhood. S. D. Mills and H. L. Mason.—p. 322.
*Renal Amino-Aciduria: Report of Two Cases, with Studies of Amino Acid Excretion Patterns. H. A. Harper, M. Grossman, P. Henderson and H. Steinbach.—p. 327.

Endocardial Sclerosis.—Endocardial sclerosis, one of the commonest types of fatal heart disease of infancy, occurred in 25 children between the ages of 5 minutes and 11½ years who were observed at the Cincinnati Children's Hospital between 1945 and 1949. The symptoms and signs of the disease presented by these patients and by 69 others reported on in the literature were reviewed. Cardiac enlargement of considerable degree was present in almost every instance. Symptoms of circulatory failure, notably dyspnea, tachycardia, coughing, and vomiting, were common. Murmurs were atypical and inconstant. Cyanosis usually occurred only as a terminal event. Electrocardiography demonstrated no typical consistent diagnostic pattern. In many infants the symptoms of severe circulatory failure appeared suddenly, and the patients died within a few days. Other infants survived the initial attacks but had recurrences until a final episode resulted in death. There were 18 infants who died during the neonatal period. Death occurred before the age of 2 years in 86, or 91% of the 94 patients included in the authors' report. The pathological cardiac findings at autopsy in the authors' 25 patients are described. The location of the sclerotic lesions in the heart did not seem related to the nature of the symptoms, except that patients whose aortic valves were involved seemed to have cyanosis somewhat more frequently and survived for shorter periods than the remainder of the group. Treatment consisted of rest, oxygen inhalation, and administration of digitalis and, if edema or congestion was evident, mercurial diuretics. Some patients improved considerably as soon as they were digitalized, and they remained in fair health for long periods on this form of therapy before the final episodes of cardiac failure took place.

Renal Amino-Aciduria.—In two baby girls with amino-aciduria, the condition differed from typical cystinuria in that all amino acid levels measured microbiologically in the urine were pronouncedly elevated. One of the patients died at the age of 16 months, and at necropsy presented the picture of cystine storage disease (cystinosis) similar to that described originally by Fanconi, with typical kidney lesions and cystine crystals in the reticuloendothelial system. The other patient is alive at the age of 2½ years, and her symptoms are relatively mild. It is possible that many, if not all, cases of cystinosis diagnosed only at necropsy are actually terminal manifestations of the generalized amino-aciduria of the Fanconi syndrome, which should be differentiated from cystinuria. The elevated urinary amino acid levels were not accompanied by increased plasma levels of amino nitrogen or of the individual amino acids, and, unless cystine storage be so considered, no evidence of impairment of amino acid metabolism was elicited in these cases other than a renal tubular defect. The excretion of amino acids in the two patients with amino-aciduria was qualitatively identical with but quantitatively increased over that of a normal child of the same age. Furthermore, as is also the case in normal persons, the amino acid pattern of the patients' urine differed from that of their plasma—a differentiation which is accomplished only through modification of the glomerular filtrate by selective renal tubular reabsorption. This indicates that the generalized amino-aciduria is a manifestation only of a reduced capacity rather than a total failure of amino acid reabsorption in the renal tubule. The biochemical diagnosis of amino-aciduria of the Fanconi type can be made on the basis of a urinary amino nitrogen level 3% greater than the total nitrogen and elevation of the urinary levels of the amino acid that remain normal in cystinuria. Plasma amino nitrogen levels should remain normal, except possibly in the terminal stage of the disease. On roentgenologic examination, both patients presented generalized demineralization of the skeleton, and one of them showed the rachitic changes previously described in this syndrome. In addition, both patients initially showed large spurs arising from the cortex of the metaphyses, some of which had vertical lines of radiolucency which resembled fractures through their bases.

A.M.A. Arch. Internal Medicine, Chicago

90:281-424 (Sept.) 1952

Peripheral Vascular Murmurs: Mechanism of Production and Diagnostic Significance. E. A. Edwards and H. D. Levine.—p. 284.
*Antibiotic Synergism and Antagonism: Review of Experimental Evidence E. Jawetz.—p. 301.
Erythema Multiforme Exudativum: Study of 15 Cases. B. W. Billow and H. J. Lowen.—p. 310.
Paroxysmal Ventricular Fibrillation Producing Adams-Stokes Syndrome; Report of Case with Review of Literature. E. S. Robertson and E. C. Mathews.—p. 320.
Genetic Studies on Coronary Atherosclerosis Developing After Age of 60 Years. E. P. Boas and D. Adlersberg.—p. 347.
Role of Central Nervous System in Metabolism of Electrolytes and Water L. G. Welt, D. W. Seldin, W. P. Nelson III and others.—p. 355.
*Treatment of Polycythemia Vera with Triethylene Melamine: Summary of 30 Cases. N. Rosenthal and R. L. Rosenthal.—p. 379.
Mandibular Joint Neuralgia (Costen's Syndrome). M. R. Beyers and S. Teich.—p. 389.
Use of Electroconvulsive Therapy in Case of Addison's Disease. W. L. Craddock and N. H. Zeller.—p. 392.
Obscure Fever Caused by Carcinoma of Kidney: Possible Explanation for Difficulties in Diagnosis. D. Greenberg, C. Ney and J. S. Feibush —p. 395.
Gangrene of Extremity Secondary to Venous Thrombosis. A. Ebel, M. Kaufman and T. Ehrenreich.—p. 402.
Review of Neuropsychiatry for 1951. S. Cobb.—p. 410.

Antibiotic Synergism and Antagonism.—Jawetz studied experimentally the effects of drug combinations on micro-organisms. Experiments with a fecal Streptococcus showed that in the test tube optimal concentrations of penicillin killed the organisms at a certain rate but permitted the survival of significant numbers of bacteria. The addition to this optimal concentration of penicillin of an amount of streptomycin, which, alone, appeared to have no effect, resulted in a striking increase in the rate of bactericidal action and death of all exposed micro-organisms, i. e., the two drugs showed synergism. The addition of chloramphenicol in a barely bacteriostatic concentration to the same optimal amount of penicillin had an antagonistic effect: the rate of bactericidal action was greatly decreased, so that in 24 hours more bacteria survived than with penicillin alone. The available evidence suggests that antibiotic synergism may be best explained by the simultaneous blocking of interacting metabolic pathways essential for growth. Fixed "synergistic" or "antagonistic" drug pairs do not exist. A given combination may be synergistic against one micro-organism, may be antagonistic against a second, and may be indifferent when acting on a third. It is the behavior of the specific micro-organism when treated with the component members of the pair that determines the combined

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Titles marked with an asterisk (*) are abstracted.

drug effect. Antibiotics may be arranged in two groups. The first group consists of penicillin, streptomycin, bacitracin and neomycin, which are frequently synergistic with each other and occasionally indifferent but never antagonistic. Aureomycin, chloramphenicol, and terramycin in the second group are neither synergistic with nor antagonistic to each other, but simple additive effects are often observed similar to those obtainable by an increase in the dose of a single drug. Sulfonamides may belong in group 2. When a drug of group 2 is added to a drug of group 1, their combined effect apparently depends on the susceptibility of the micro-organism to the group 1 drug. With a micro-organism susceptible to a group 1 drug, antagonism may result; with a micro-organism resistant to a group 1 drug, synergism may result. This entirely hypothetical scheme proved helpful in the planning of experiments and in the selection of drug combinations for treatment of specific infections of patients.

Triethylene Melamine in Polycythemia Vera.—Triethylene melamine was given orally one hour before breakfast in doses of 2.5 or 5 mg. every one to three days to 30 patients with polycythemia vera of 1 to 20 years' duration. The total dose of the drug administered varied from 15 to 40 mg. Of the 30 patients, 20 showed a satisfactory symptomatic and hematological response to the drug, with red blood cell count and hematocrit percentage reduced to normal levels in 12 and to values slightly above normal in 8, while 10 showed little or no response. An average remission of eight to nine months followed an average course of 30 mg. of triethylene melamine in the 20 patients who showed a satisfactory response to the drug. Analysis of these cases revealed that patients with a shorter duration of disease and normal thrombocyte and white blood cell counts responded more favorably to treatment than patients with a long history of the disease and elevated white blood cell and thrombocyte counts. After triethylene melamine therapy the thrombocyte count fell below 100,000 in 9 of the 20 patients with increased red blood cells, and a definite decrease in thrombocytes occurred also in 7 patients in whom significant changes in the red blood cell values had not been produced. This thrombocyte depressant effect of triethylene melamine is of additional value in relation to thromboembolic and hemorrhagic complications. Results obtained indicate that triethylene melamine offers good potentialities in the treatment of polycythemia vera. Further observation is necessary before valid comparison with radioactive phosphorus (P^{32}) therapy can be made.

A.M.A. Arch. Pathology, Chicago

54:119-236 (Aug.) 1952

Lesions of Epiphyseal Cartilage and Skeletal Muscle in Rats on Diet Deficient in Potassium. J. Cohen, R. Schwartz and W. M. Wallace.—p. 119.

Dorsal Intestinal Fistula; Accessory Neurenteric Canal; Diastematomyelia. J. L. Bremer.—p. 132.

Observations on Histogenesis of Brenner Tumor: Report of Case Showing Ovarian and Endometrial Involvement. S. Kerpe, M. M. Black and F. D. Speer.—p. 139.

Observations on Formation of Smallpox Scars. G. Bras.—p. 149.

Degeneration of Elastic Fibers in Granulomatous Giant Cell Arteritis (Temporal Arteritis). P. Kimmelstiel, M. T. Gilmour and H. H. Hodges.—p. 157.

Nephrotoxic Globulin Nephritis: II. Relation of Severity to Adrenal Size. R. W. Lippman, H. U. Marti and E. E. Jacobs.—p. 169.

*Studies on Experimental Hypertension and Cardiovascular Disease: I. Method for Rapid Production of Malignant Hypertension in Bilaterally Nephrectomized Dogs. J. L. Orbison, C. L. Christian and E. Peters.—p. 185.

Effect of Bioflavonoids on Radiosensitivity of Transplanted Tumors: Effect on Tolerance to Contact Radiation. B. Sokoloff, W. H. Eddy and G. Cone.—p. 197.

*Effect of Thyroxin and 2,4-Dinitrophenol on Retrogression of Experimental Atherosclerosis. A. R. Bainborough and G. C. McMillan.—p. 204.

Familial Gingival Hypertrophy in Dog (Doxer Breed). M. S. Burstone, E. Bond and R. Litt.—p. 208.

Experimental Hypertension in Dogs with Both Kidneys Removed.—It had been observed that when dogs with both kidneys removed were maintained with the aid of the artificial kidney or peritoneal lavage, the animals that retained part of the lavage fluid became hypertensive while those that did not retain the fluid remained normotensive. Orbison and associates reasoned that if fluid were introduced into the peritoneal cavity of dogs that had been subjected to bilateral nephrectomy the result might be rapid production of hypertension and vascular lesions. In experiments to test this hypothesis they found that hypertension was consistently produced within 24 to 48 hours after a second nephrectomy in dogs by intraperitoneal injection of either 0.9% sodium chloride solution or a more complex electrolyte solution. That this hypertension was "malignant" is indicated by the fact that 12 of 14 dogs had arterial necrosis and myocardial hemorrhage and necrosis. In these animals the development of hypertension was not caused by the presence of a renal pressor substance, since both kidneys had been removed, or by the absence of a hypertension-suppressing substance of renal origin, since bilateral nephrectomy alone failed to produce the hypertension. The complex electrolyte solution was found to produce a greater degree of hypertension and more pronounced vascular disease than the 0.9% sodium chloride solution alone. This indicates that the amount of fluid is not the only factor involved in this phenomenon and that the composition of the fluid also plays a role. The histological alterations in these animals are similar to those described in other reports on "malignant hypertension" and suggests the possibility of a similar underlying mechanism.

Thyroid and 2,4-Dinitrophenol in Atherosclerosis.—The atherosclerotic lesions induced in the aortas of rabbits fed a diet enriched with cholesterol had been observed to retrogress slowly when the animals were returned to a normal diet. Several attempts had been made to hasten the spontaneous disappearance of the intracellular and extracellular lipids contained in atherosclerotic lesions, but it was found that procedures capable of inhibiting the production of experimental cholesterol atherosclerosis do not effect the retrogression of the lesions. It was believed that substances such as thyroxin or 2,4-dinitrophenol, which increase the rate of cellular metabolism, might promote the catabolic destruction of lipids in atherosclerotic plaques and hasten retrogression of the plaques. Experiments to test this possibility are described here. They demonstrated, however, that thyroxin and 2,4-dinitrophenol fail to hasten the retrogression of well-developed atherosclerotic lesions in rabbits. The drugs were given in doses that resulted in physiological and morphological evidence of activity.

American Heart Journal, St. Louis

44:165-324 (Aug.) 1952

Method for Recording Spatial Vectorcardiograms. L. E. Lamb and E. G. Dimond.—p. 165.

Spatial Vectorcardiogram During First Decade of Life. L. E. Lamb and E. G. Dimond.—p. 174.

Levocardia. H. L. Moscovitz, A. J. Gordon and L. Scherlis.—p. 184.

Uncomplicated Isolated Dextrocardia ("Dextroversio Cordis" Type). H. B. Burchell and D. G. Pugh.—p. 196.

*Chronic Constrictive Pericarditis: Further Consideration of Pathologic Physiology of Disease. C. G. Sawyer, C. S. Burwell, L. Dexter and others.—p. 207.

Studies on Mechanism of Ventricular Activity: III. Contraction of Ventricles in Experimental Bundle Branch Block. L. A. Smith, J. Fields, R. Kennamer and M. Prinzmetal.—p. 231.

Dissociation with Interference in Presence of 2:1 Atrioventricular Block. W. Dressler, H. Roesler and L. S. Specter.—p. 238.

Dual Displacement and Velocity Ballistocardiograph Apparatus. L. Pordy, K. Chesky, A. M. Master and others.—p. 248.

Ballistocardiographic Response to Nitroglycerin in Coronary Artery Disease. H. Mandelbaum and R. A. Mandelbaum.—p. 257.

Fusion Frequency of Flicker in Hypertension: Study of Its Application to Estimation of Hypertensive Cardiovascular Disease. H. H. Fertig, F. Olmsted and A. C. Corcoran.—p. 261.

Drug Effects in Wolff-Parkinson-White Syndrome. H. Blinder, J. Burstein and R. Smelin.—p. 268.

Clinical Diuretic Studies on Three New Mercurial Compounds. J. H. Moyer, C. A. Handley and R. A. Seibert.—p. 281.

Manikin to Simplify the Teaching of Congenital Heart Disease. A. E. Brodeur.—p. 294.

Abnormal Physiology in Chronic Constrictive Pericarditis.—Catheterization of the heart and the pulmonary vessels make it practical to investigate the pressure and flow phenomena in the right side of the heart and in the pulmonary vascular system of patients with constrictive pericarditis. Studies with these methods were made on six patients. Every patient showed an elevation of pulmonary capillary pressure, which reflects pulmonary venous pressure. This demonstration of pulmonary congestion is interpreted as indicating that involvement of the left

ventricle plays a more important role in the functional changes associated with pericardial constriction than has been demonstrated previously. The patients also showed an elevation of pressure in the peripheral veins and in the right atrium. Pressure measurements in the right ventricle and pulmonary artery indicate a reduced ability of the right ventricle to facilitate the forward movement of blood. These observations confirm the previously recognized involvement of the right ventricle. Before operation the mean pulmonary capillary pressure in these patients was about equal to the peripheral venous pressure. The limitation of stroke volume and cardiac output per minute was confirmed by these studies. The postoperative course of events suggests that myocardial atrophy, myocardial fibrosis, and incomplete release of the ventricles may all play a role in the slow and incomplete return to normal dynamics after operation. The therapeutic implications of these studies are as follows: 1. Surgical treatment aims at the adequate release of both ventricles. 2. There are no indications for the decortication of the great veins and auricles. 3. The early use of antibiotics in acute tuberculous pericarditis may minimize myocardial fibrosis, and may permit operative treatment before myocardial atrophy is severe. The fact that improvement after operation is often slow and incomplete in terms of objective measurements should not obscure the more important fact that a well-planned operation for constrictive pericarditis has in the past usually made the difference between invalidism and maintenance of activity. The studies reported in this paper should make future operations for this disorder even more effective.

American Journal of Clinical Pathology, Baltimore

22:821-924 (Sept.) 1952. **Partial Index**

Mobility of Pneumoconiotic Deposits. P. Gross and J. H. U. Brown. —p. 821.
Evaluation of Serum Potassium Levels. J. H. Webster, J. Neff, S. S. Schiaffino and A. M. Richmond.—p. 833.
*Parenchymal Calcification of Kidneys in Patients with Duodenal Ulcer. D. L. Becker, A. H. Baggenstoss and J. F. Weir.—p. 843.
Effect of Adrenocorticotropic Hormone (ACTH) on Serum Amylase Activity and Carbohydrate Metabolism. C. L. Tribby.—p. 855.
Survey of Thyroid Glands Obtained at Autopsy in So-Called Goiter Area. J. B. Hazard and N. Kaufman.—p. 860.
Practical Method for Storing Organs in Cases of Fatal Poisoning. L. Adelson and S. R. Gerber.—p. 866.
Ethyl Alcohol in Blood and Urine: Simple photometric Method for Its Forensic Determination. L. M. Shupe and K. M. Dubowski.—p. 901.
Dubos' Medium with Albumin for Yeast-Phase Growth of Histoplasma Capsulatum. C. J. D. Zarafonetis.—p. 911.
Decalcification of Bone with Trifluoroacetic Acid. D. O. Rosbash and D. Leavitt.—p. 914.
Smear Method for Rapid Diagnosis of Neurosurgical Material. C. P. Larson and C. C. Reberger.—p. 916.
Polyethylene Tubing for Collecting Increased Amount of Blood Serum for Microchemical Tests. R. Day and E. Perry.—p. 917.

Parenchymal Calcification of Kidneys Concurrent with Duodenal Ulcer.—Becker and collaborators had noticed in routine necropsies that many patients with parenchymal calcification of the kidneys had a history of duodenal ulcer. Since alkalosis is known to occur in patients being treated for duodenal ulcer and since there is thought to be a relationship between alkalosis and parenchymal renal calcification, it was decided to study the kidneys of patients with duodenal ulcer. Parenchymal calcification of the kidneys consists of the deposition of calcium salts in the substance of the kidneys, in contradistinction to the formation of gross stones in the renal pelvis. The authors investigated the records of 99 patients with duodenal ulcer, in whom necropsy was performed during the years 1945 through 1948. A control group of 99 cases was selected from the routine necropsies of the same years. Each case of the "ulcer" group was matched by a case from the control group in which the patient died during the same year, was of the same sex, and was within 10 years of the same age. In 36 cases of duodenal ulcer there was some degree of renal parenchymal calcification, whereas this process was present in only 13 of the control cases. In 21 cases of the ulcer group and 6 control cases the calcification was moderate or severe. These differences are statistically significant. Thus the study proved that renal parenchymal calcification occurs more frequently in patients with duodenal ulcer (36%) than in those without ulcer (13%). Ninety-four per cent of the patients with duodenal ulcer and renal calcification had ulcer symptoms severe enough to require medical care, 68% had a history of high intake of absorbable alkalies and 50% developed complications requiring surgical treatment. Only 75%, 39% and 29%, respectively, of the patients with duodenal ulcer without renal calcification had similar histories. The authors suggest that the cases of renal parenchymal calcification represent a group of patients with duodenal ulcer who, in addition to receiving large amounts of calcium in their diet (alkaline powders and milk), had also transient and asymptomatic episodes of alkalosis. The renal parenchymal calcification that occurred during these episodes was not severe enough to cause renal failure.

American Journal of Physiology, Washington

170:1-238 (July) 1952. **Partial Index**

Mechanism of Plasma Protein Changes Following Saline Infusions. K. Wasserman and H. S. Mayerson.—p. 1.
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Effect of Adrenalectomy on Experimental Renal Hypertension in the Dog. W. Williams, C. Whisnant and W. T. Fitts Jr.—p. 57.
Influence of Age on Rate of Respiration of Sliced Cardiac Muscle. A. Wollenberger and J. Jehl.—p. 126.
Effects of Anesthesia on Bleeding Volume in Dog. C. I. Wang and W. W. Walcott.—p. 143.
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American Journal of Psychiatry, New York

109:81-160 (Aug.) 1952. **Partial Index**

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Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

68:171-354 (Aug.) 1952

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*Esophageal Perforations: Review of Etiology with Representative Case Presentations. B. B. Gay Jr.—p. 183.
Intussusception (Colocolic) with Spontaneous Extrusion of Intussusceptum: Case with Unusual Roentgen Manifestations. G. Jacobson, R. A. Carter and E. N. Snyder Jr.—p. 198.
Roentgenological Findings in Amyloidosis of Stomach: Case Report. F. C. Shipps and D. D. Brannan.—p. 204.
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Roentgen Kymographic Localization of Intrathoracic Foreign Bodies. A. H. Joistad Jr.—p. 216.
New Bronchographic Technique Employing Aerosol Anesthesia: Further Experiences in Children and Adults. J. B. Miller, N. Dinhoffer and W. H. Conyers Jr.—p. 229.
*Evaluation of Five Year Minifilm Program. P. D. Crimm.—p. 240.
Roentgen Evaluation of Vertebral Fractures Resulting from Convulsive Shock Therapy. H. J. Isard.—p. 247.
Diagnosis of Placenta Previa Without Use of Contrast Media. J. S. Fetter.—p. 255.
Primary Malignant Tumors of Nasopharynx. R. M. Geist Jr. and U. V. Portmann.—p. 262.
Radium Treatment of Cancer of Uterine Cervix by Manchester System: Use of Plastic Vaginal Applicators. F. D. Hankins and J. G. Hockin. —p. 272.
Clinical Study of Radiation Sickness: Evaluation of Etiological Factors Influencing Incidence and Severity. F. Ellinger, B. Roswit and J. Sorrentino.—p. 275.
Problem of Roentgen Stimulation. V. V. Brunst.—p. 281.

Esophageal Perforations.—Perforations and fistulas of the esophagus may be congenital or acquired. This report is concerned only with the acquired forms, which are divided into primary and secondary forms. The primary or spontaneous form is the most serious of all. It occurs mostly in middle-aged men, usually alcoholics, following vomiting or after a heavy meal. There is severe substernal pain, which radiates to the back and is not relieved by opiates. Physical examination reveals an acutely ill patient in shock, with cyanosis, palpable subcutaneous air in the neck, and left-sided effusion. Many cases,

however, are not typical, and the diagnosis is delayed because the esophageal perforation is mistaken for ruptured peptic ulcer, cholecystitis, pancreatitis, intestinal obstruction, perforated appendix, pulmonary or coronary infarction, pneumotorax, pleural effusion, or dissecting aneurysm. Only in the past several years has the accuracy of diagnosis of spontaneous rupture of the esophagus been improved; before that such perforations were generally fatal. Improvement in diagnosis and prompt treatment have greatly reduced the mortality. The roentgenologist should be familiar with the clinical picture and with the roentgenographic aspects, which are described. Under the heading of secondary perforations the author discusses first perforations resulting from internal trauma by foreign bodies, chemical burns, and instrumentation. Trauma from without in the form of crushing injuries or penetrating chest wounds may also cause esophageal perforation, and finally there are the perforations brought on by disease, such as neoplasms, inflammations, peptic ulcer, and diverticula. These different forms are considered, and representative cases from the Lawson Veterans Administration Hospital are described.

Five Year Chest Roentgenogram Program.—The five year mobile unit roentgen study reviewed by Crimm was carried out in Vanderburgh County, Indiana. The study was financed by money collected at the rate of $1.50 per film. The majority of those examined were industrial employees. High school, city block, and township surveys were made free of charge in order to compare the "charge method" with the so-called "free method" and to ascertain whether with the charge method segments of the population were missed that might have a high incidence of tuberculosis. Particular attention was paid to food handlers in restaurants, drug stores, and taverns, since they have the highest incidence of tuberculosis of any group. Roentgenograms were made for a total of 70,877 persons, and many were reexamined in hospitals, clinics, and offices of private physicians. In addition 5,599 were reexamined by the mobile unit. Stereoscopic 4 by 10 in. films were used. In 59,716, or 84%, of the total number of 70,877 persons who were examined, the films were negative for the reinfection type of tuberculosis; 2,910 or 4.1% had the reinfection type of tuberculosis; 2,866 of these (4.04% of the total group) had inactive disease, while 44 (0.06% of the total group) had active disease. Other pathological conditions of the chest were found in 31.4 of every 1,000 patients. These included abnormalities of heart and aorta, azygos lobe, substernal thyroid, lung tumors, and congenital cystic disease. The results obtained were compared with 15 other surveys. Mass roentgenography of the entire population is too expensive and involves inadequate pre-education with a too cumbersome follow-up program. Continuous roentgen studies and follow-up among groups that have a high incidence of tuberculosis not only gives publicity but also a significant yield in active and inactive cases. The author feels that such a program carried out among food handlers and domestics would greatly reduce the tuberculosis morbidity and mortality for the entire population. This study demonstrates that surveys can be made efficient and self-supporting without the assistance of either state or federal government subsidies.

Am. Practitioner & Digest of Treatment, Philadelphia

3:693-780 (Sept.) 1952

Clinical Comparison of Two Hypotensive Drugs: Newer Ergot and Veratrum Aklaloids. S. R. Elek, J. D. McNair and G. C. Griffith.—p. 693.
Fractures of Zygoma. T. E. Douglas Jr.—p. 697.
New Cholinergic Blocking Agent in Treatment of Duodenal and Gastric Ulcers: Preliminary Report. T. S. Heineken.—p. 701.
Coarctation of Aorta in Newborn: Two Cases Diagnosed Clinically. N. H. Solomon and H. King.—p. 706.
Intravenous Seconal Sodium in Obstetric Labor: Preliminary Evaluation. C. C. Weitzman and J. G. Davis.—p. 712.
Medical Management of Chronic Ulcerative Colitis. A. Wollum and H. M. Pollard.—p. 717.
Allergy Problems in General Practice and Their Management. L. Tuft. —p. 722.
Principles and Technic of Operation of Exsufflator. A. L. Barach, G. J. Beck and W. Smith.—p. 733.
Prolonged Relief of Post-Episiotomy Pain. B. E. Cappe and I. M. Pallin. —p. 739.
Functional Causes of Dysphagia. J. M. McMahon.—p. 744.

American Review of Tuberculosis, New York

66:125-260 (Aug.) 1952

•Action of Isoniazid (Isonicotinic Acid Hydrazide) on Intracellular Tubercle Bacilli. G. B. Mackaness and N. Smith.—p. 125.
Guided Symphysis: Functional Prophylaxis in Exudative Pleurisy and Pneumothorax Fluid. G. Birath.—p. 134.
•Anatomic Relationships Between Bronchogenic Carcinoma and Calcified Nodules in Lung. C. E. Woodruff, N. C. Sen-Gupta, S. Wallace and others.—p. 151.
Clinical and Histopathologic Study of Effect of Cortisone and Corticotropin on Tuberculosis. L. Wallner, J. R. Thompson and M. R. Lichtenstein.—p. 161.
Use of Rabbit Eye as Tissue to Study Tuberculosis. III. Effect of Adrenal Hormones upon Course of Disease and upon Certain Immunologic Responses. P. Bunn and B. Drobeck.—p. 175.
Triangular Hilar Shadows. S. C. Stein.—p. 188.
Streptomycin in Guinea Pigs with Discrete Chronic Tuberculous Lesions. W. Steenken Jr., E. Wolinsky, P. C. Pratt and M. M. Smith.—p. 194.
Irregular Discharge. E. G. Beacham.—p. 213
Reversal of Activity of Antituberculous Compounds in Vitro. R. Donovick, A. Bayan and D. Hamre.—p. 219.
Effect of Probenecid (Benemid) in Enhancing Paraaminosalicylic Acid Concentrations in Blood. R. B. Breitenbucher, D. S. Amatuzio and A. Falk.—p. 228.

Isonicotinic Acid Hydrazid and Intracellular Tubercle Bacilli.—The antibacterial activity of isonicotinic acid hydrazid (isoniazid) was tested against two strains of Mycobacterium tuberculosis grown in Dubos-Davis medium and intracellularly in living isolated rabbit macrophages. In Dubos-Davis medium the virulent bovine strain Branch and the human strain H37Rv of Myco. tuberculosis revealed a difference in response; the bovine strain gave a stable endpoint and could not be recovered in viable form after 14 days' exposure to minimal or nearly minimal inhibitory concentrations of the drug. The H37Rv strain did not give a stable endpoint, and when incubation was continued, growth appeared in concentrations at least as high as 1.0 μg of the drug per cubic centimeter. This difference of the two strains was to some extent paralleled by their behavior in macrophage cultures. Bacilli of the Branch strain appear to have been killed within macrophages by seven days' exposure to not more than twice the minimal inhibitory concentration of isonicotinic acid hydrazid, while higher concentrations were required for inhibition of the H37Rv strain under the same conditions. Experiments reported by the authors in a previous paper demonstrated that most antituberculous drugs showed a marked reduction in activity against intracellular bacilli. Thus, 25 μg of streptomycin per cubic centimeter were required to prevent growth of the H37Rv strain in living macrophages. By contrast, the present experiments demonstrated that isonicotinic acid hydrazid is equally active against intracellular bacilli and those grown in Dubos-Davis medium. It produced inhibition of the same strain at a concentration of 0.05 μg of the drug per cubic centimeter.

Bronchogenic Carcinoma and Calcified Nodules in the Lungs.—A study was made of 116 cases of bronchogenic, primary carcinoma of the lungs to determine whether bronchogenic carcinoma originates more frequently in portions of the lung marked by calcified foci than in lung areas not so marked. In 67 cases the calcified focus was considered significant according to the following criteria: it was 4 mm. or more in diameter, was found in the same lobe as the tumor or in the tracheobronchial nodes draining that lobe, and was larger than any calcified focus found in the opposite lung. In these cases 19 of the lesions were squamous cell carcinomas, 20 were of the large cell, and 22 of the small cell undifferentiated type, and 6 were adenocarcinomas. Calcified foci were closely associated with the tumor in 15 cases (79%) of squamous cell carcinoma, in 12 cases (60%) of the large cell undifferentiated type, and in 13 cases (59%) of the small cell undifferentiated type. Only one of the adenocarcinomas showed an associated calcified focus. Calcified foci such as those observed in the authors' cases usually mark the area of a healed primary tuberculous lesion. In the Detroit area where these cases originated, any etiological agent for these foci other than healed tuberculosis would be rare. It would therefore seem that in many cases the various pulmonary abnormalities left by the healing of a primary tuberculous focus are factors of importance in the localization of bronchogenic carcinoma. If this is true, the pronounced drop in death rate from tuberculosis in young men during the past 50 years, and the consequent increase in the number of persons in the 50 to 60 year age group with healed

primary tuberculous foci, may explain the present increase in the incidence of bronchogenic carcinoma. Most of the bronchogenic carcinomas in this series occurred in persons in this age group.

American Surgeon, Atlanta, Ga.

18:859-938 (Sept.) 1952

Total Adrenalectomy for Malignant Hypertension. C. Lyons and H. Holley.—p. 859.
Problem of Herniorrhaphy: Inguinal and Incisional. R. R. Coffey.—p. 862.
Treatment of Facial Scars. J. R. Lewis Jr.—p. 867.
Use of More Potent Cobra Venom for Intractable Pain. R. G. Hills and W. M. Firor.—p. 875.
Tumors in Parotid Region: Direct Surgical Approach and Preservation of Seventh Nerve in Benign Tumors—Description of Radical Operation for Malignant Tumors. J. B. Brown and M. P. Fryer.—p. 880.
*Experiences with Chemical Decortication. W. A. Hopkins, W. H. Van Fleit and F. Salamone.—p. 891.
Value of Chloromycetin in Colonic Surgery. E. Boling and H. Finch.—p. 903.
Choledochoduodenal Fistula: Report of Case Complicating Duodenal Ulcer. J. D. Martin Jr.—p. 908.
Endometrial Carcinoma. W. M. Jones, G. C. Blanton Jr. and M. Hagood.—p. 913.
Hiatus Hernia. T. Farrar and R. L. Sanders.—p. 919.
Toxemia of Pregnancy. R. Torpin.—p. 925.

Experiences with Chemical Decortication.—This paper deals with 34 patients with clotted blood or exudate in the pleural space who were treated with the enzymes streptokinase and streptodornase to effect rapid lysis of the clots. The material used in most of these patients was supplied in vials containing approximately 200,000 units of streptokinase and from 40,000 to 70,000 units of streptodornase. The powder dissolved in 10 cc. of isotonic sodium chloride solution. The injections were made directly into the coagulum in at least three spaces using approximately 3 cc. in each injection. As many as 10 injections were given to individual patients. Of the 23 patients with traumatic pneumothorax, who were subjected to this chemical decortication, 12 had been operated on and the other 11 had sustained trauma such as gunshot wounds, stab wounds, or rib fractures. In these 23 patients excellent, good, or fair results were obtained with the chemical decortication in all but three. Only three of the seven patients with chronic empyema obtained satisfactory results. The third and last group of four patients had pleural effusion following pneumonia. Multiple thoracenteses had been attempted to remove this fluid without success, but chemical lysis of the clot by means of streptokinase and streptodornase produced satisfactory results in all four cases. Malaise, fever, arthralgia, and leukocytosis constituted the toxic reactions resulting from the use of the enzymes, but these reactions were never severe enough to necessitate discontinuation of the treatment. In two cases of chronic empyema major hemorrhages resulted, and in both cases the treatment was discontinued. Such hemorrhages are a hazard of this treatment. The authors feel that this form of chemical decortication is helpful in the treatment of intrathoracic coagulum and should be tried before surgical decortication is undertaken, particularly in the case of clotted hemothoraces.

Anesthesiology, New York

13:343-454 (July) 1952

Circulatory Changes During Anesthesia for Neurosurgical Operations. W. S. Howland and E. M. Papper.—p. 343.
Use of Parenteral Dramamine to Control Postoperative Vomiting: Report of 1192 Cases. D. C. Moore, L. Anderson, G. Wheeler and J. Scheidt.—p. 354.
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*Stenosing Coronary Arteritis: Its Possible Role in Coronary Artery Diseases. F. G. Zak, M. Helpern and D. Adlersberg.—p. 289.
Studies in Aortic Autografts and Homografts: Do Homografts Survive? H. G. Parsons, F. Gerbode and A. J. Cox.—p. 306.
Allen Test in Polycythemia: Presence and Interpretation of Positive and Negative Reactions. R. Schwartz and W. M. Cooper.—p. 317.
*Tobacco Smoking as Etiologic Factor in Disease. II. Coronary Disease and Hypertension. S. Dolgoff, R. Schrek, G. P. Ballard and L. A. Baker.—p. 323.
Use of Hyaluronidase in Treatment of Chronic Skin Ulcers in Diffuse Generalized Scleroderma. R. J. Popkin.—p. 335.

Conservative Treatment and Recovery in Aortic Embolism.—Aortic embolectomy has a very high mortality rate when performed on a seriously ill patient. This fact and the satisfactory results obtained with conservative management of peripheral arterial embolism at different sites led the authors to try conservative measures in two cases of aortic embolism. The first patient, a woman of 69, was admitted to the hospital with a provisional diagnosis of pulmonary infarction. Her heart was slightly enlarged, and she had auricular fibrillation controlled by digitalis. Her temperature, which was 38 C on admission, first declined and then on the 12th hospital day rose to 39.4 C; the chest pain became worse, and the white cell count rose to 14,200. Empyema was thought to be developing, and penicillin was given. The temperature came down again and pain decreased, but on the 18th day severe pain developed in both legs and symptoms typical of aortic saddle embolism were found. Embolectomy was rejected because of her advanced age and poor general condition. Conservative treatment consisting of repeated bilateral sympathetic lumbar blocks, spinal anesthesia, and anticoagulants was given, and adequate circulation was gradually restored to the limbs. The second patient was a 37-year-old primipara, first seen in the seventh month of pregnancy because of increasing dyspnea and cyanosis. Her condition improved slightly on a salt-poor diet and digitalis, and the delivery at term of a normal infant was uneventful. Two months later she experienced the sudden onset of pain and paresis, with numbness and a sensation of cold in both lower limbs. Lumbar sympathetic block and administration of anticoagulants brought rapid improvement. Three weeks after admission, she left the hospital. At first she was able to take short walks; now (two years later) she can walk normally. The principal object in treating peripheral arterial embolism is to prevent ischemic gangrene by restoring adequate circulation. Experience has shown that this can be accomplished through release of vasospasm, increasing the function of the collaterals by regional sympathetic blocks, and using anticoagulants to prevent secondary arterial thrombosis. The same principle has been successfully applied to aortic embolism. Conservative measures should be tried during the first six or eight hours after the onset of symptoms; unless adequate circulation is restored, embolectomy should then be carried out if the patient's condition permits. Patients for whom surgical intervention is contraindicated should continue to receive conservative treatment.

Stenosing Coronary Arteritis.—Stenosing coronary arteritis, like thromboangiitis obliterans, is characterized histologically by an acute transient inflammation resulting in deposits of intimal "fibrinoid," which become incorporated in the vessel wall. Repeated attacks lead to renewed deposits, causing narrowing of the lumen, which eventually interferes with the blood supply or ends in complete occlusion by superimposed thrombus. Stenosing arteritis is not limited to the young, nor is it found only in the coronary arteries. The end stage of this condition is morphologically indistinguishable from the primary form of atherosclerosis and is characterized by deposits of hyaline, lipids, and lime salts with accompanying distortion of the artery. The first attack, occurring before the vessel becomes stenosed, is likely to be clinically silent. The importance of infectious, toxic, and allergic factors in the etiology of coronary occlusion is indicated by the number of cases reported following respiratory infections, antisyphilitic therapy, injections of serum, vaccina-

tions (typhoid), and hypersensitivity reactions to penicillin, etc. The extensive angioneurotic edema of the skin and mucous membranes sometimes seen paralleling the anginal attacks in such cases suggests that a "vascular urticaria" or edematous swelling of the arterial intima may explain the clinical and electrocardiographic findings. Milder episodes of urticaria are everyday occurrences and may also produce transitory intimal swelling. Each succeeding episode of this character probably leaves some residual alteration tending to thicken the intima, finally ending in abrupt occlusion and death.

Tobacco Smoking as an Etiological Factor in Disease.—The smoking habits of patients with hypertension and coronary disease were studied and compared with those of a carefully selected control group. Statistical analysis of the figures obtained showed (1) a positive correlation between coronary disease and heavy cigarette smoking (defined as smoking of more than 20 cigarettes daily), and (2) a relatively low average age (50.3 years) of heavy cigarette smokers with coronary disease. The finding of a low average age of patients with coronary disease who were heavy cigarette smokers seems to support the hypothesis that heavy cigarette smoking is a direct etiological factor in coronary disease. Cigar smoking was also found to be correlated with coronary disease, but the average age of the cigar smokers with coronary disease was relatively high (54.6 years), making a causal relationship improbable. The incidence of coronary disease among heavy cigarette smokers was estimated to be 1.5 times as high as that among moderate and light smokers and nonsmokers. No correlation was found between smoking and hypertension.

Annals of Internal Medicine, Lancaster, Pa.

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Diabetic Retinopathy. B. Becker.—p. 273.
*Acute Barbiturate Intoxication: Study of 300 Cases Based on Physiologic System of Classification of Severity of Intoxication. C. E. Reed, M. F. Driggs and C. C. Foote.—p. 290.
Primary Malignant Disease of Liver. C. H. Sanford.—p. 304.
Recent Advances in Pathogenesis and Treatment of Atherosclerosis. G. E. Wakerlin.—p. 313.
BAL Treatment of Toxic Reactions to Gold: Review of Literature and Report of Two Cases. J. F. Strauss Jr., R. M. Barrett and E. F. Rosenberg.—p. 323.
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Development of Gastric Carcinoma in Pernicious Anemia. J. W. Norcross, S. E. Monroe and B. G. Griffin.—p. 338.
Lipid Studies in Patients with Advanced Diabetic Atherosclerosis. L. T. DeWind, G. D. Michaels and L. W. Kinsell.—p. 344.
*Use of ACTH and Cortisone in Idiopathic Thrombocytopenic Purpura and Idiopathic Acquired Hemolytic Anemia. M. C. Meyers, S. Miller, J. W. Linman and F. H. Bethell.—p. 352.
Antimicrobial Therapy of Tuberculosis in 1952. H. C. Hinshaw.—p. 362.

Acute Barbiturate Intoxication.—In 209 cases of acute barbiturate intoxication in which treatment was given before July, 1949, a variety of therapeutic measures were used. A study of this group revealed that caffeine and amphetamine may cause fatal arrhythmias when given in doses exceeding 6 gm. and 300 mg. per 24 hours respectively. In 91 patients observed after July, 1949, a uniform plan of treatment was followed, based on the classification of the severity of coma. On the basis of this study, the authors make the following recommendations. Blood pressure, pulse, respirations, and reflexes should be recorded frequently, as well as the medications and fluids given. As long as the gag reflex is depressed, and at the slightest indication of laryngospasm, an endotracheal tube should be inserted. The bed should be placed on shock blocks, and excess secretions should be removed by suction. The patient should be turned from side to side to prevent hypostatic pneumonia, and should be given penicillin prophylactically. Gastric lavage should be done, because the barbiturates cause gastric irritation and pylorospasm. A saline cathartic should be introduced into the stomach to reduce absorption of the drug remaining in the bowel. Barbiturates are antidiuretic agents, and so the mercurial diuretics may be useful. Since many patients with barbiturate poisoning are alcoholics and since the barbiturates are partially detoxified in the liver, the authors recommend parenteral administration of vitamin B complex and glucose solution. The latter is a convenient vehicle for administration of analeptics. Pentylenetetrazole (metrazol®) has much the same pharmacologic effects as picrotoxin and probably is of value. No serious arrhythmias were observed in the authors' series, except that picrotoxin caused premature ventricular contractions in two cases. The most serious complications were lower nephron nephrosis and hyperthermia. The mortality rate in the 209 cases treated without a standard therapeutic program was 13.4%, and in the 91 cases treated according to a uniform plan it was 5.5%.

Corticotropin and Cortisone in Purpura and Anemia.—Corticotropin or cortisone was given to 17 patients with thrombocytopenic purpura and 7 patients with acquired hemolytic anemia. In 12 of the 17 patients with thrombocytopenic purpura the platelet counts and bleeding times returned to normal and clinical symptoms disappeared. In 5 of these 12 patients the remissions were sustained for many months, whereas the other 7 patients relapsed after the cessation of hormone therapy. One of these had previously failed to respond to splenectomy. In the other six a second or third remission was induced, and while the hemorrhagic diathesis was under control, splenectomy was performed. In four patients who had incomplete remission, splenectomy was performed during hormone treatment, and there were no postoperative relapses. In six of the seven patients with acquired hemolytic anemia, the hemolytic process was controlled with either corticotropin or cortisone, but four relapsed to the extent of requiring re-treatment in preparation for splenectomy. A single patient, in whom cortisone therapy appeared life-saving yet incapable of producing a complete remission, failed to attain normal values after splenectomy until cortisone treatment was reinstituted. Thus failure to respond to the administration of corticotropin and cortisone does not preclude a therapeutic response to splenectomy. Furthermore, patients with incomplete remissions after splenectomy may be benefited by corticotropin or cortisone administration. Intensive preoperative courses of corticotropin and cortisone do not interfere with wound healing.

Annals of Surgery, Philadelphia

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Some Physiologic Aspects of Surgical Trauma. J. D. Hardy and I. S. Ravdin.—p. 345.
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Trapezius Paralysis Following Minor Surgical Procedures in Posterior Cervical Triangle: Results Following Cranial Nerve Suture. B. Woodhall.—p. 375.
*Therapeutic Use of Radioactive Isotopes in Intracranial Tumors. L. Davis and S. L. Goldstein.—p. 381.
Tripartite Deltoid and its Surgical Significance in Exposure of Scapulohumeral Joint. L. C. Abbott and D. B. Lucas—p. 392.
Preservation of Facial Nerve in Operations for Benign Conditions of Parotid Area. L. T. Byars.—p. 412.
Role of Venous Endothelium in Inception of Thrombosis. P. B. Samuels and D. R. Webster.—p. 422.
*Direct Surgery of Arteriosclerosis. O. C. Julian, W. S. Dye, J. H. Olwin and P. H. Jordan.—p. 459.
Successful Experimental Maintenance of Life by Homologous Lungs and Mechanical Heart. H. W. Fischer, H. Albert, W. L. Riker and W. J. Potts.—p. 475.
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Surgical Significance of Pulmonary Hypertension. W. H. Muller Jr. and J. F. Dammann Jr.—p. 495.
*Control of Heart Action by Repetitive Electrical Stimuli. C. E. Herrod, R. H. Lee, W. H. Goggans and others.—p. 510.
Intrathoracic Tracheal Tumors: Development of Surgical Technics for Their Removal. O. T. Clagett, H. J. Moersch and J. H. Grindlay.—p. 520.

Radioactive Isotopes in Intracranial Tumors.—Absorbable gelatin sponge (gelfoam®) or starch sponge impregnated with therapeutic doses of radioactive colloidal gold (Au^{198}) or radioactive phosphorus (P^{32}) in the form of chromic phosphate was implanted intracerebrally through a small trephine opening in 50 healthy adult cats. In general, the animals tolerated the procedure fairly well and showed no significant neurological

changes. The animals were killed 1, 2, 4, 8, 16, or 32 weeks postoperatively. Microscopic examination of sections of the brains revealed destruction of a narrow band of tissue, extending 1 to 3 mm. away from the site of implantation. After several weeks there was repair and regeneration in this necrotic band. There was no appreciable difference between the effects of Au^{198} and those of radioactive chromic phosphate. However, radioactive chromic phosphate can be used with less risk of excessive irradiation to the surgeon, since P^{32} emits only beta rays and smaller quantities are required. Except for the necrosis in early cases, there was no particular difference between the effect of the radioactive isotopes and that of plain absorbable gelatin sponge and plain starch sponge, as well as gelatin sponge and starch sponge impregnated with nonradioactive colloidal gold and chromic phosphate, which were implanted intracerebrally in control animals. No pathological effects could be seen in any of the tissues of the central nervous system more than approximately 3 mm. from the operative site, nor could any effect be seen in other tissues of the body. It may be concluded, therefore, that the central nervous system tissue of cats is highly resistant to the effects of therapeutic doses of Au^{198} and of P^{32} in chromic phosphate. Work is now in progress employing this method of radioisotope therapy in patients with intracranial gliomas following surgical removal.

Direct Surgery of Arteriosclerosis.—In 18 arteriosclerotic patients between the ages of 33 and 65 with segmental arterial obstruction lengths of the femoral artery varying from 8 to 38 cm. were resected and replaced by vein grafts. Of the 19 grafts in the 18 patients 2 were superficial femoral autografts, 14 were saphenous autografts, and 3 were saphenous homografts. A technique is presented for placing a saphenous autograft, involving a step during which the graft functions as an arteriovenous fistula. Twelve of the 19 grafts restored the circulation with return of pulses and relief of claudication. Six grafts have been termed failures in that there has not been a return of pulses or any significant increase in the oscillometric index. One patient died from coronary occlusion three weeks postoperatively, and on necropsy the graft was observed to be open. Six additional arteriosclerotic patients between the ages of 37 and 62 were subjected to thromboendarterectomy or intimectomy by a method of eversion of the flexible outer layers of the vessels. Intimectomy of the external iliac or common iliac arteries was carried out in five patients, with restoration of pulses in three. Intimectomy of the entire superficial femoral artery was performed in the sixth patient, with restoration of pulse during the short three month follow-up period. In one additional patient, a young woman with the so-called Leriche syndrome, the aortic bifurcation was replaced with an aortic-iliac homograft. The restored pulses were still present two months postoperatively. As a result of their experience with this relatively small number of patients the authors state that, except in unusual instances, the value to the patient of such procedures does not extend over a very long time. Most patients, although they have distinct operable segments of arteriosclerosis, also have arteriosclerotic involvement outside the resected area; they are, therefore, subject to other arterial obstructions elsewhere and to reobstruction of the vessel above and below the site of surgical treatment. Rigid selection of the patients to be subjected to surgery, depending on the results of visualization of a channel in the main vessel distal to the obstruction by means of an arteriogram, is considered necessary to limit the number of failures.

Control of Heart Action by Electrical Stimuli.—Experiments were made on dogs to determine the extent to which cardiac contraction could be controlled by electrical current applied to the heart in various strengths for varying duration, when the heart was beating normally, under the influence of procaine amide (pronestyl®), in anoxic standstill, in fibrillation, in depression, and during vagal stimulation. An electronic device capable of delivering defibrillating shocks or repetitive electrical stimuli for pacemaking was designed and used for these experiments. Results showed that repetitive stimuli are capable of superimposing contractions on the normally beating heart and of dominating the rhythm if the conductivity is altered by procaine amide. Repetitive stimuli will not revive the heart from anoxic standstill but will restore the blood pressure and heart rate in standstill due to vagal stimulation. Shocks of 1.5 amp. are most efficient in defibrillating a heart in ventricular fibrillation, and repetitive electrical stimuli of low voltage are of no value in restoring the heart in this condition or in the standstill that occurs after defibrillation with electric shocks. Rhythmic manual compression proved more effective than repetitive electrical stimuli in reviving the heart in standstill.

Arkansas Medical Society Journal, Fort Smith

49:41-56 (Aug.) 1952

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Blood, New York

7:863-958 (Sept.) 1952. **Partial Index**

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Red Cell Thickness in Normals and in Pernicious Anemia. G. Larsen.—p. 874.
Activation of Plasminogen by Trypsin and Plasmin. W. Kocholaty, W. W. Ellis and H. Jensen.—p. 882.
Separation and Purification of Leukocytes and Platelets. J. L. Tullis.—p. 891.
Immediate Hematologic Effects of Intravenous Saccharated Iron Oxide. L. P. White, H. R. Bierman, K. H. Kelly and R. L. Byron Jr.—p. 897.
Use of Thorium Doxide Sol (Thorotrast) in Roentgenologic Demonstration of Accessory Spleens. V. Loeb Jr., W. B. Seaman and C. V. Moore.—p. 904.
Familial Hypoplastic Anemia with Congenital Abnormalities (Fanconi's Syndrome). J. D. L. Reinhold, E. Neumark, R. Lightwood and C. O. Carter.—p. 915.

Circulation, New York

6:321-480 (Sept.) 1952

•Results of Surgical Treatment for Mitral Stenosis: Analysis of 100 Consecutive Cases. O. H. Janton, R. P. Glover, T. J. E. O'Neill and others.—p. 321.
•Pathogenesis of Spontaneous Cardiac Rupture. S. Wessler, P. M. Zoll and M. J. Schlesinger.—p. 334.
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Deposition and Disappearance of Digitoxin from Tissues of Rat, Rabbit, and Dog after Parenteral Injection. M. Friedman, S. St. George, R. Bine Jr. and others.—p. 367.
Correlation of Serum Potassium Concentrations with Blood Pressure in Rats Fed Potassium-Deficient Ration. S. M. St. George, S. C. Freed and R. H. Rosenman.—p. 371.
Pressor Effects of Epinephrine, Norepinephrine and Desoxycorticosterone Acetate (DCA) Weakened by Sodium Withdrawal. W. Raab, R. J. Humphreys, N. Makous and others.—p. 373.
Measurement of Q-T Interval of Electrocardiogram. E. Lepeschkin and B. Surawicz.—p. 378.
Nickerson Ballistocardiogram in Arteriosclerotic Heart Disease with and Without Congestive Failure. R. J. Jones.—p. 389.
Ballistocardiogram in Myocardial Infarction: Study of 100 Cases. M. Moser, L. Pordy, K. Chesky and others.—p. 402.
Ballistocardiogram in Free Clinic. J. McGuire, G. Herwitz and J. R. Braunstein—p. 408.
•Surgical Treatment of Coarctation of Aorta in 10 Week Old Infant: Report of Case. J. W. Kirklin, H. B. Burchell, D. G. Pugh and others.—p. 411.
Origin of Variations of Body Impedance Occurring During Cardiac Cycle. F. H. Bonjer, J. van den Berg and M. N. J. Dirken.—p. 415.
Traumatic Heart Disease: Nonpenetrating Injuries. R. W. Kissane.—p. 421.

Results of Surgical Treatment for Mitral Stenosis.—Of 64 women and 36 men between the ages of 17 and 53 with mitral stenosis treated by commissurotomy, 64 had "pure" mitral stenosis, 27 had mitral stenosis and an associated minimal mitral insufficiency, and 9 had an associated aortic insufficiency. Frank hemoptysis had occurred preoperatively in 25 patients and systemic arterial emboli in 22 others. No recurrence of these complications was observed one to three and one-half years after the surgical intervention. There were 11 deaths directly attributable to surgical technique, i. e., a mortality rate of 11%. The mortality was greatest when the surgical technique was being developed; with improved technique, involving use of a specially devised guillotine knife in preference to finger dilatation, the mortality has been reduced to 5.8%. Two of four additional deaths that cannot be attributed to the surgical intervention occurred within seven months postoperatively due to unabated progression of the disease, which had been associ-

ated with a pronounced degree of mitral insufficiency, and the other two were due to intercurrent disease. The functional status was excellent in 32 of the 85 surviving patients, improved in 46, and unimproved in 7. A sinus rhythm changed to auricular fibrillation after the surgical intervention in 15; in 9 the change was permanent. In one patient auricular fibrillation changed to sinus rhythm postoperatively. A rough correlation was observed between the extremes of pulmonary artery systolic pressure and the clinical, roentgenologic and electrocardiographic findings. Calcium was found in the mitral valves in 52 patients and did not, per se, predicate a poor functional result. No instance of rheumatic fever occurred postoperatively, even though 14 of 78 biopsied auricular appendages indicated rheumatic infection. Surgical reconstruction of the stenotic mitral valve is but a major adjunct in the continuing care of rheumatic fever victims. Selection of patients at an early stage is of utmost importance.

Pathogenesis of Spontaneous Cardiac Rupture.—The hearts of 20 patients who had died suddenly from rupture of the heart were studied by a special technique consisting of injection and dissection of the coronary arteries and examination of multiple, carefully localized histological sections of the myocardium. All 20 ruptures occurred through areas of acute myocardial infarction. A control series of nonruptured hearts of 104 patients who died with acute infarction was studied in the same way. The clinical records of these 124 patients who had died and of 104 additional patients who survived an episode of acute myocardial infarction were compared. An additional review of reports in the literature on cardiac rupture showed that it occurred in 9% of 2,609 patients who died with acute infarction in 29 general hospitals. Spontaneous myocardial rupture always occurs in hearts in which there is an acute coronary artery occlusion and a recent myocardial infarction, which is transmural and poorly supplied by collateral circulation and in which fibrosis is entirely absent in at least one area. Concomitantly, there is significantly less coronary artery occlusion and myocardial fibrosis among patients with acute infarction who die with cardiac rupture than among those who die without rupture. Concerning the type of patient in whom rupture is most likely to occur, the clinical data of the 228 patients reported on by the authors showed that rupture usually develops between the 4th and 11th day of an acute myocardial infarction in a hypertensive patient with no previous history of old myocardial infarction or congestive failure. Persistent hypertension or excessive effort usually precedes rupture. Rupture associated with acute myocardial infarction is commoner in women than in men. This is due in part to the lesser extent of coronary disease and greater incidence of hypertension among women. Hearts with the underlying abnormalities that are always associated with rupture may not perforate unless hypertension or excessive effort occurs during acute infarction; conversely, hypertension and excessive effort do not produce rupture if the appropriate cardiac abnormality is absent. Most acute myocardial infarctions change continously in extent for some time after their inception, with simultaneous repair of old areas and involvement of new sites. The usual location of rupture through the more recently infarcted myocardium explains, in part, why rupture may occur almost any time during the first three weeks after the onset of necrosis. Increased intraventricular pressure appears to be a critical factor in the development of cardiac rupture. Strenuous measures may, therefore, be justified to avoid or reduce arterial hypertension and effort in patients during acute myocardial infarction.

Surgical Treatment of Coarctation of Aorta in Infancy.—In a 10-week-old baby girl roentgenograms of the chest showed pronounced cardiac enlargement, and electrocardiograms were consistent with hypertrophy of the right ventricle. Aortograms were made by injecting 5 cc. of a 75% solution of sodium iodomethamate ("neo-iopax") into the aorta with the aid of a small polyethylene tube threaded through the left brachial artery. The aortograms demonstrated clearly a coarctation of the aorta just proximal to the origin of the left subclavian artery. There was no evidence of patent ductus arteriosus. A left posterolateral incision was made through the fourth intercostal space and the coarctated area of the aorta was excised along with the aortic end of the ligamentum arteriosum and the origin of the left subclavian artery that showed a mild narrowing. An end-to-end anastomosis was then effected. The infant tolerated the procedure well, and the convalescence was uneventful. When the patient was reexamined at 18 months of age, the heart was of normal size and the child was developing normally. This case emphasizes that coarctation of the aorta may be associated with a serious degree of cardiac enlargement in early infancy, that diagnosis of the malformation by aortography is feasible, and that successful surgical treatment of the coarctation is possible in a 10-week-old patient.

Connecticut State Medical Journal, Hartford

16:575-662 (Aug.) 1952

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New Theories of Retinal Venous Thrombosis. H. L. Birge.—p. 582.
Infectious Hepatitis in Pregnancy. H. C. Taylor—p. 587.
Evaluation of Telepaque a New Cholecystographic Medium. R. M. Lowman and H. W. Stanley.—p. 591.
Group Practice of Anesthesia. M. L. Garofalo, P. F. D'Elia, N. A. Kazanjian and others.—p. 594.

Florida Medical Association Journal, Jacksonville

39:91-142 (Aug.) 1952

Management of Acute Cholecystitis. W. J. Clifford and H. W. Keschner.—p. 91.
Accidents Among Florida Children: Leading Cause of Death. H. A. Carithers.—p. 97.
Thrombotic Thrombocytopenic Purpura. N. L. Marcus.—p. 101.

39:143-226 (Sept.) 1952

Pitfalls in Surgery of Ruptured Intervertebral Disk. W. J. Mixter.—p. 159.
*Experiences with Therapeutic Use of Long-Acting Corticotrophic Preparation. C. P. Lamar.—p. 167.
Blood Transfusion Problems. J. T. Stage, J. C. Taylor and J. R. Barr.—p. 173.
Federal Thought Control Challenge to American Liberties and Freedom. V. M. Newton Jr.—p. 179.

Therapeutic Use of Long-Acting Corticotropin.—A corticotropin (ACTH) gelatin mixture (acthar®-gel) was given a therapeutic trial in four patients, one asthmatic patient with congestive hepatomegaly and amenorrhea, one with pemphigus vulgaris, one with disseminated lupus erythematosus, and one with "mixed" rheumathoid arthritis. The drug was given intramuscularly, once a day, in doses of 20 to 40 units for prolonged periods. The patients were observed for over five months. The response to the drug in all four patients was satisfactory and paralleled that usually observed when corticotropin is administered according to the more tedious usual schedule, i. e., every six hours around the clock intramuscularly or by slow intravenous drip for eight hours in similar cases. Comparison of the effect of the corticotropin gelatin mixture administered intramuscularly and that of orally administered cortisone in the two patients with disseminated lupus erythematosus and with "mixed" rheumatoid arthritis seemed to show that the former produces more sustained therapeutic benefits and a greater reduction in circulating eosinophil count levels. Circulating eosinophil counts appear to parallel clinical manifestations. Besides a better control of clinical manifestations and more prolonged remissions obtained with long-acting corticotropin, the doses of the corticotropin gelatin mixture required to induce remission of symptoms and to maintain significant reductions in the eosinophil counts are less likely to induce side-reactions such as severe Cushing's syndrome than the doses of orally administered cortisone required for the same therapeutic effect. Long-acting corticotropin may be more effective in the management of chronic conditions in which this type of therapy is indicated than orally administered cortisone.

Journal of Applied Physiology, Washington, D. C.

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Derangements of Pulmonary Function in Individuals Without Clinical Evidence of Disease of Heart or Lungs. M. Galdston, W. B. Wolfe and J. M. Steele.—p. 17.
Radiation Area of Human Body. A. Guibert and C. L. Taylor.—p. 24.
Electropotential and Pressure Variations in Normal Human Urinary Bladder. E. L. Corey, W. H. Boyce and C. R. French.—p. 38.

Journal of Immunology, Baltimore

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Id.: III. Immunological Properties of Purified Vi Antigen Derived from Escherichia coli 5396/38. M. Landy and M. E. Webster.—p. 143.
Quantitative Aspects of Influenza Virus Multiplication. H. J. F. Cairns, M. Edney, S. Fazekas and others.—p. 155.
Electron Microscopic Counting of Elementary Bodies of Virus of Meningo-Pneumonitis. T. T. Crocker and B. M. Bennett.—p 183.
Hemolysis with Complement of Intact Azo-Erythrocytes Sensitized with Antisera Homologous to Attached Azo-Grouping. A. M. Silverstein and F. Maltaner.—p. 197.
Influence of Preservatives, of Heat, and of Irradiation on Mouse Protective Activity and Detoxification of Pertussis Vaccine. M. Pittman. —p. 201.
Effect of ACTH and Cortisone on Quantitative Precipitin Reaction. S. Malkiel and B. J. Hargis.—p. 217.
Neutralizing Antibodies Against Certain Recently Isolated Viruses in Sera of Human Beings Residing in East Africa. K. C. Smithburn. —p. 223.
Serologic and Dermal Reactions in Guinea Pigs Injected Intradermally with Brucella Antigens. C. M. Carpenter, R. A. Boak and C. J. DeBoer —p. 235.

Journal of Investigative Dermatology, Baltimore

19:95-168 (Aug.) 1952. **Partial Index**

Local Defect in Metabolism of Pyridoxine in Skin of Persons with Seborrheic Dermatitis of "Sicca" Type. A. W. Schreiner, E. Rockwell and R. W. Vilter.—p. 95.
Ineffectiveness of Local Applications of Adrenocortical Steroids in Preventing Effects of Ultraviolet Rays on Human Skin. J. Everall and L. Fisher.—p. 97.
Effect of Topically Applied Compound F in Selected Dermatoses. M. B. Sulzberger and V. H. Witten.—p. 101.
Experiments on Choline Content of Skin and Sebum. B. Ottenstein, N. Boncoddo, A. Walker and F. M. Thurmon.—p. 105.
Effect of Intradermal Injection of Adreno-Cortical Hormones. F. B. Benjamin, T. Cornbleet and M. I. Grossman.—p. 109.
Histopathology of Nail Diseases. C. J. White and T. C. Laipply.—p. 121.
Physiology of Glands of Human Ear Canal: Preliminary Report. W. C. Lobitz Jr. and C. J. Campbell.—p. 125.
Insect Bite Reaction. II. Evaluation of Allergic Reaction. E. M. Rockwell and P. Johnson.—p. 137.

Journal of Pediatrics, St. Louis

41:125-250 (Aug.) 1952

Cephalhematoma Associated with Fracture of Skull. N. Kendall and H. Woloshin.—p. 125.
Hemorrhagic Infarction of Kidneys in Infants: Report of Unilateral Case in 8-Day-Old Male Infant with Survival of Infant Following Successful Nephrectomy. C. L. Milburn Jr.—p. 133.
*Endocardial Fibroelastosis: Case Reports with Special Emphasis on Clinical Findings. F. H. Adams and B. Kantz.—p. 141.
Study of Hypnotic Effect of Dormison in Children. H. J. Malone, G. R. Klimkiewicz and H. J. Gribetz.—p. 153.
Impetigo and Acute Infectious Exfoliative Dermatitis of Newborn Infant (Ritter's Disease). H. F. Lee, R. B. Wilson, C. E. Brown and T. P. Reed.—p. 159.
Molybdenized Ferrous Sulfate (Mol-Iron) in Treatment of Anemia of Premature Infants. A. H. Tuttle and J. N. Etteldorf.—p. 170.
Polymyxin B in Pseudomonas and Proteus Enteritis. S. H. Walker. —p. 176.
Treatment of Acute Infantile Diarrhea with Carob Flour (Arobon). P. U. Abella.—p. 182.
Generalized Cutaneous Herpes Simplex: Report of Case Complicating Meningococcemia. L. Finberg and R. S. Easton.—p. 188.
Congenital Hypertrophic Pyloric Stenosis in Small Premature Infant. H. Schwartz, L. Iamele and I. M. Rosenthal.—p. 192.
Duplication of Alimentary Tract. R. T. Fox and J. T. Fowler Jr.—p. 194.
Hypervitaminosis A. S. E. Goldzier, J. C. Pisacano and A. M. Wald. —p. 198.

Endocardial Fibroelastosis.—This paper reviews observations on 21 patients with endocardial fibroelastosis, which is usually associated with hypertrophy of the heart, primarily of the left ventricle, and generally occurs in small infants. In the past this condition has probably erroneously been labeled congenital idiopathic hypertrophy or fetal endocarditis. Four of the 21 patients reviewed here are still alive. The case histories of two of the patients who died and two who are still living are presented. The symptoms may appear very shortly before death or there may be no symptoms, and thus this syndrome must be added to the increasing list of possible causes of "sudden death" in infants. The symptoms in endocardial fibroelastosis are related mostly to left ventricular failure. Examination reveals fever, dyspnea, cyanosis, rales in the lungs, cardiac hypertrophy, and possibly hepatomegaly. The electrocardiogram may reveal left axis deviation and evidence of left ventricular hypertrophy, in addition to indications of anoxemia and heart strain. Roentgen examination usually reveals a markedly enlarged heart. Some patients die so early that the diagnosis cannot be suspected clinically. Other patients tend to have recurrent episodes of left heart failure, usually precipiated by respiratory disease. Patients with endocardial fibroelastosis seem to respond better and more quickly to digitalis and oxygen than patients with congenital heart disease. In patients with heart murmur, the differential diagnosis must rule out congenital heart disease. In patients without a heart murmur it is necessary to differentiate between myocarditis and endocardial fibroelastosis. It has been suggested that endocardial fibroelastosis might be one of the collagen diseases, but Adams and Katz deny this on the evidence presented in this report. The fibrous tissue elements of the endocardium are greatly increased and elastic fibers are occasionally present in the heart valves, but fibroelastosis only rarely involves the myocardium.

Journal of Thoracic Surgery, St. Louis

24:105-212 (Aug.) 1952

Experimental Methods for Detection of Changes of Blood Supply to Heart. A. Goldman, C. Shaw, E. Corday and others.—p. 105.
Artificial Oxygenation and Circulation During Complete By-Pass of Heart. J. A. Helmsworth, L. C. Clark Jr., S. Kaplan and others.—p. 117.
Some Physiologic Aspects of Artificial Heart Problem. F. D. Dodrill, E. Hill and R. Gerisch.—p. 134.
Technique of Producing Mitral Stenosis of Controlled Degree. R. G. Ellison, R. C. Major, R. W. Pickering and W. F. Hamilton.—p. 154.
Surgical Approach for Stenotic Lesions of Semilunar Valves by Excision and Cusp Replacement Under Direct Vision. R. S. Litwak, H. L. Gadboys, G. B. Scott and J. F. Ferrara.—p. 165.
Experimental Pulmonary Venous Occlusion. C. R. Hanlon, D. C. Sabiston Jr. and D. R. Burke.—p. 190.
Further Discussion of Right Thoracic Approach to Esophageal Lesions. R. K. Hollingsworth.—p. 201.

Kentucky State Medical Assn. Journal, Bowling Green

50:317-362 (Aug.) 1952

Male Hypogonadism and Infertility. H. H. Turner.—p. 317.
Surgery of Acute Abdomen. H. W. Cave and W. Wichern.—p. 321.
Ulcer and Cancer of Stomach. A. W. Allen.—p. 325.
Bulbar and Respiratory Poliomyelitis: Early Detection and General Principles. A. J. Steigman.—p. 330.
Certain Types of Congenital Heart Disease Amenable to Surgery. R. L. McClendon and W. R. Hansen.—p. 335.
Coxsackie Virus. R. G. Elliott.—p. 340.

Maine Medical Association Journal, Portland

43:265-294 (Aug.) 1952

Problem of Premature Infant. A. A. S. Whittier.—p. 270.
Bronchial Asthma—Pitfalls in Diagnosis and Treatment. B. Zolov. —p. 272.
Uterine Fibroid. K. A. Laughlin.—p. 275.
*Streptokinase—Streptodornase in Surgical Wounds: Review of Enzymatic Debridement—Eight Case Reports. J. Sonneland.—p. 277.

Débridement of Surgical Wounds with Streptokinase and Streptodornase.—Most reports on enzymatic débridement have dealt with the dissolution of pleural cavity coagulums, but this paper is concerned with the use of the débriding enzymes, streptokinase and streptodornase, in surgical wounds. The enzymes used were derived from the filtrate of a strain of hemolytic Streptococcus that is nonpathogenic for men. Fibrin and cellular portions of wound coagulum can be dissolved by these enzymes, but no enzymes are as yet commercially available that can successfully dissolve collagen, though there has been considerable research on the development of collagenases. In addition to dissolving fibrin and dead cell debris, the streptokinase-streptodornase mixture produces a marked leukocytosis at the site of application in the wound. Furthermore, the viscosity of the wound exudate is reduced, and phagocytosis of bacteria is increased. The typical wound responds with loss of its edema and production of compact red granulation tissue. Thus wound healing is accelerated, and the time interval before grafting or sec-

ondary closure is reduced to a minimum. The application of the enzymes should be reasonably frequent and should be followed by irrigation of dissolved coagulum. Specific antibiotic therapy should be given in addition, because wound débridement cannot be effective when there is severe infection. Streptokinase and streptodornase were effective in all but one of the eight patients treated, and this patient had severe infection. In two other cases, although the soft tissues improved, osteomyelitis became established and thus prevented a successful outcome. The five remaining patients all showed an excellent response.

Maryland State Medical Journal, Baltimore

1:367-428 (Aug.) 1952

Medical Education and Medical Research are Part and Parcel of Medical Profession. A. M. Chesney.—p. 369.

Medical Annals of District of Columbia, Washington

21:413-470 (Aug.) 1952

Therapy of Poliomyelitis. S. I. Wolf.—p. 413.
Cerebral Hemodynamics in Cerebral Arteriovenous Vascular Anomalies: Report of Two Cases. A. N. Bessman, G. J. Hayes, R. W. Alman and J. F. Fazekas.—p. 422.
Use of Whole Blood. S. F. Seeley and E. J. Pulaski.—p. 425.
Use and Abuse of Some New Drugs. E. J. Pulaski, F. M. Forster and J. W. Trenis.—p. 430.

Minnesota Medicine, St. Paul

35:729-810 (Aug.) 1952

Practical Aspects of Rh Factor. E. L. Potter.—p. 729.
Emergencies Occurring During Anesthesia—Their Treatment and Prevention. F. C. Jacobson.—p. 732.
Emergencies Occurring During Surgical Procedures. D. P. Anderson. —p. 735.
Immediate Postoperative Emergencies. J. W. Baird.—p. 738.
Evaluation of Compensable Disability. C. O. Rice.—p. 740.
Fractures of Distal Part of Forearm in Children: Correction of Deformity by Growth. R. G. Giberson and J. C. Ivins.—p. 744.
Resuscitation of Newborn. E. N. Cohen.—p. 750.

Nebraska State Medical Journal, Lincoln

37:241-272 (Aug.) 1952

Treatment of Trochanteric Fractures of Hip. C. F. Ferciot.—p. 243.
Advancement in Surgical Treatment of Disabled Hip. F. S. Webster. —p. 246.
Bacterial Sensitivity Tests with Special Reference to Urinary Tract Infections: Study of 120 Patients. L. W. Lee.—p. 251.
Weil's Disease: Case Report. C. T. Mason.—p. 252.
Pulmonary Edema. J. M. Neely.—p. 254.

New England Journal of Medicine, Boston

247:305-338 (Aug. 28) 1952

*Diabetes and Pregnancy. D. Hurwitz and N. Higano.—p. 305.
Association of Spontaneous Mediastinal Emphysema and Acute Myocardial Infarction: Report of Two Cases. R. K. Nixon Jr.—p. 310.
Effect of Aureomycin on Development of Cold Agglutinin in Primary Atypical Pneumonia. C. D. Gallagher and J. R. Gallagher.—p. 314.
Antimicrobial Treatment for Viral and Related Infections. I. Antibiotic Treatment of Primary Atypical Pneumonia. M. Finland.—p. 317.

Diabetes and Pregnancy.—The authors reviewed the records of 140 diabetic pregnant women observed from 1932 to 1950. They discuss diagnosis and management and give special attention to the factors influencing fetal mortality. The incidence of fetal mortality could not be closely correlated with the severity or duration of maternal diabetes, except for a lower incidence found in mild diabetes or in diabetes discovered during pregnancy. The incidence of toxemia (29%) was increased as compared to that in nondiabetic women (7 or 8%). A slightly higher incidence of toxemia was noted in cases in which intrauterine or neonatal deaths occurred. The net fetal mortality was 23%; 72% of these deaths occurred before the 37th week. Whether earlier delivery than previously advocated will result in more live babies or more neonatal deaths from prematurity cannot be answered at present. Preliminary studies on a small group of patients treated orally with diethylstilbestrol appear to show a decreased incidence of fetal mortality and maternal toxemia. A method of study for evaluating hormonal therapy is outlined.

Ohio State Medical Journal, Columbus

48:713-792 (Aug.) 1952. **Partial Index**

Review of Treatment of Goiter. W. M. Skipp.—p. 713.
Anemia: Its Recognition and Management. W. P. Murphy.—p. 716.
Portacaval Anastomosis: Report on Six Cases. J. H. Lazzari and F. J. Rack.—p. 720.
Larval Myocardial Ascariasis: Report of Case. L. Adelson.—p. 723.
Limitations of Electrocardiograph. A. G. Groscost.—p. 727.
Needle Biopsy of Liver. J. J. Grady.—p. 730.

Pennsylvania Medical Journal, Harrisburg

55:737-880 (Aug.) 1952

Arterial Hypertension. I. H. Page.—p. 737.
Carcinoma of Colon and Rectum: Discussion of Various Methods of Treatment. A. J. McAdams.—p. 743.
Obstructive Jaundice and Anomalies of Biliary Tract. J. W. Stinson and A. V. Casillo.—p. 746.
Advances in Diagnosis of Gastric Disease. P. L. Shallenberger.—p. 749.
Dermatitis (Diaper Rash): Bacteriologic Study of Diaper Region. C. P. Brown, R. M. Tyson and F. H. Wilson.—p. 755.

Proc. Staff Meet. Mayo Clinic, Rochester, Minn.

27:329-344 (Aug. 13) 1952

*Smoking and Asthma. G. A. Peters, L. E. Prickman, G. A. Koelsche and H. M. Carryer.—p. 329.
Preliminary Studies of New Anticoagulant Drug. D. A. Scholz and N. W. Barker.—p. 332.
Effect of Surgically Induced Arteriovenous Fistula on Bone Growth: Report of Case. J. M. Janes and E. C. Elkins.—p. 335.
Report of Radium Therapy for 1951. R. E. Fricke and M. Van Herik. —p. 337.
Investigation of Bacterial Pyrogen as Therapeutic Agent in Neurologic Disorders. A. A. Bailey, E. D. Rooke and E. A. Rodin.—p. 340.

Smoking and Asthma.—Smoking is one of the commonest sources of bronchial irritation, and invariably increases cough and asthma. Smoker's tongue, smoker's cough, smoker's throat, and smoker's bronchitis are no figments of the imagination, and when smoking is discontinued, these effects of tobacco smoking clear up in most instances. Smoking also has an irritating effect on the larynx. If a patient has asthma, he should not merely reduce smoking, he should completely stop it. Even if a healthy person smokes a package of cigarets daily over an extended period, chronic cough, bronchitis, and expectoration will frequently develop. The asthmatic patient with his sensitive, inflamed respiratory passages will respond to similar irritation even more quickly, and coughing and wheezing ensue. The irritation of mucous membranes by tobacco smoke leads to the formation of mucus as a protective reaction. Many patients cough hard to raise mucus, and the more they cough, the more they aggravate their asthma. It should be explained to them that mucus is a protective covering. Only the oversupply of mucus, which makes its presence felt by a tickle high in the trachea, need be expelled, and then preferably with the most gentle clearing of the throat, avoiding hard coughing. The best possible regimen for the relief of asthma may fail, if the patient is permitted to continue smoking.

Rhode Island Medical Journal, Providence

35:361-404 (July) 1952

Medicine of the Future. J. S. Simmons.—p. 361.
Pulmonary Hamartoma with Case Reports. P. Cooper and D. V. Pecora. —p. 368.
Practice of Medicine Today. H. A. Lawson.—p. 371.

Virginia Medical Monthly, Richmond

79:419-478 (Aug.) 1952

Neurosurgical Methods for Relief of Severe Intractable Pain. C. C. Coleman, J. M. Meredith and C. E. Troland.—p. 422.
Histoplasmosis Occurrence in Virginia. N. S. Payne, G. R. Hennigar and L. E. Sutton Jr.—p. 430.
Lobotomy in Mental Disorders. W. Freeman.—p. 436.
Treatment of Perforated Appendix. W. H. Buffey and F. B. Lee.—p. 440.
Management of Crossed Eyes. E. G. Gill.—p. 445.
Psychiatric Implications in Abortions. D. C. Wilson.—p. 448.
Ruptured Vasa Previa. G. Speck and P. E. Halter.—p. 452.
Benign Solitary Granulomatous Ulceration of Cecum. J. L. Smoot and J. G. Willis.—p. 454.

FOREIGN

Acta Radiologica, Stockholm

37:503-586 (June) 1952. **Partial Index**

Method of Topographic Urethrocystography in Women. B. E. W. Nordenström.—p. 503.
Soft Tissue Radiography of Placenta. C. F. Qvist.—p. 510.
Pneumoretroperitoneum: Technique and Results. S. Fagerberg.—p. 519.
Roentgen Kymography After Pericardiolysis for Calcifying Pericarditis. R. Haubrich.—p. 543.
*Roentgenologic Diagnosis of Duodenal Ulcer. J. Ferolla.—p. 554.
Cleidocranial Dysostosis Associated with Osteosclerosis and Bone Fragility. G. Thomsen and M. Guttadauro.—p. 559.
*Value of Preoperative Roentgen Irradiation in Operable Breast Cancer. S. Kaae.—p. 568.

Roentgenologic Diagnosis of Duodenal Ulcer.—Ferolla directs attention to the fact that thick mucus may temporarily block a duodenal ulcer niche and thus prevent its visualization. This occurs more frequently than is ordinarily realized. It is suggested that the mucus be displaced by the barium and that pictures of the duodenal relief pattern be made only after the stomach has been emptied somewhat, the patient having been turned on his right side. Four cases are discussed in support of this hypothesis.

Preoperative Roentgen Irradiation in Breast Cancer.—From 1931 to 1944 the treatment of operable breast cancer at the radium center in Copenhagen consisted of preoperative roentgen irradiation and radical mastectomy, in some cases supplemented by postoperative roentgen irradiation. During all these years the surgical procedure was the same, but up to June, 1938, moderate doses of roentgen rays were employed in the preoperative irradiation, whereas after that considerably larger doses were employed. Comparing the efficacy of the moderate with the more intensive doses, the author concludes that preoperative roentgen irradiation has no value as a supplement to mastectomy except in cases in which there are advanced local and regional growths.

Archiv für Psychiatrie u. Nervenkrankheiten, Berlin

188:379-470 (No. 5) 1952. **Partial Index**

*Removal of Left Occipital and Part of Parietal Lobe: Status 15 Years After Operation. R. Walther.—p. 379.
Fundamentals of Planimetry of Encephalogram and Evaluation of Cranial Roentgenogram. H. Rennert.—p. 390.
Problem of Paranoic Delusions. G. Hofer.—p. 401.
*Hortega's Silver Carbonate Staining Methods: Reliability and Technique. K. Scharenberg and W. Zeman.—p. 430.
Histologic Studies on Brain in Case of Cystine Storage Disease. N. Wolf.—p. 456.

After-Effects of Removal of Left Occipital Lobe.—Studies were made on a 33-year-old man in whom 15 years previously the left occipital lobe and a portion of the adjoining parietal lobe had been surgically removed because of an oligodendroglioma. Memory and comprehension, and with this, general knowledge were impaired, there was some defect in emotional control, the man tired readily, his field of thought was restricted, he lacked the ability to survey situations generally, and his mental processes seemed to be slowed. All these indications of mental weakness have been observed in patients with slight cerebral changes. The authors were surprised not by the slight impairments, but rather by the absence of greater disturbances. They were astounded that, despite the loss of the entire left occipital lobe and of the adjoining portions of the parietal lobe, the patient, a right-handed person, had a well-integrated personality that seemed quite normal, and that special psychological examination revealed no qualitative impairment but only some quantitative reduction in mental performance. This case corroborates the assumption, expressed by Lange and Wagner, that, at least in young persons, the right half of the brain can completely compensate for the left half.

Hortega's Silver Carbonate Methods.—The silver carbonate staining technique of del Rio Hortega was originally described for the staining of microglia, but it can be adapted to many different problems. Scharenberg and Zeman describe six basic modifications that permit the elective staining of various tissue elements: an astroglia technique, a microglia technique, double impregnation without reduction, triple impregnation, connective tissue staining, and panoptic methods. They say that the improvements developed in their laboratory were the result of Hortega's suggestions. These silver carbonate stains are an extremely valuable aid in the study of general neurohistopathological problems, as well as in special morphologic problems, particularly tumor diagnosis. Some of these techniques, particularly the latest, designed for the study of gliomas, are not as widely known as they deserve to be, since they have the advantage of simplicity and reliability and make it possible to produce large series of uniformly impregnated sections within a short time. However, although the silver carbonate methods are very reliable, time and experience are required for technical proficiency. The specimens often disclose all their details only after greatest magnification, and their interpretation may prove difficult, but findings that may seem obscure at first may be correctly interpreted after the examiner has gained more experience. Therefore, as was pointed out by Hortega, details difficult to interpret should not be disregarded.

Archives of Disease in Childhood, London

27:309-408 (Aug.) 1952

*Nephrotic Syndrome in Children Treated with A. C. T. H. and Cortisone. M. F. McCall, A. Ross, B. Wolman and others.—p. 309.
Cortisone Treatment of Nephrosis. G. C. Arneil and H. E. C. Wilson.—p. 322.
*Retrolental Fibroplasia. E. Jefferson.—p. 329.
Comparative Study of Circulating Eosinophil Level in Babies. I: Premature Infants. J. M. Burrell.—p. 337.
Galactosaemia. P. T. Bray, R. J. Isaac and A. G. Watkins.—p. 341.
Polyostotic Fibrous Dysplasia. R. H. Vines.—p. 351.
Cystinosis. D. A. J. Williamson.—p. 356.
Chronic Pancreatitis in Childhood. T. James.—p. 364.
Torsion of Ovary in Childhood. S. Taylor.—p. 368.
Successful Removal of Anterior Mediastinal Teratoma from an Infant. F. Starer.—p. 371.
Haematogenous Osteitis of Infancy. W. M. Dennison and D. A. Macpherson.—p. 375.
Radiographs of the Hand as an Index of Skeletal Maturity in Infants. R. M. Acheson.—p. 382.
Evidence of Post-Natal Environmental Influence in Aetiology of Infantile Pyloric Stenosis. T. McKeown, B. MacMahon and R. G. Record.—p. 386.
Two Cases of Hand-Schüller-Christian Disease in Infancy. F. W. Nash and J. B. Cavanagh.—p. 391.
Paroxysmal Tachycardia in Infancy. H. G. Farquhar.—p. 401.
Restoration of Normal Breathing in Asthmatic Children. A. A. Nove.—p. 405.

Corticotropin and Cortisone in Nephrotic Syndrome.—Of six boys and one girl between the ages of 3 and 12 with the nephrotic syndrome, four were given cortisone and three received corticotropin (ACTH). Cortisone was injected intramuscularly once daily for 10 days, with total doses of from 600 to 1,500 mg. Corticotropin was given intramuscularly at six hour intervals in daily doses of 40 mg. to 100 mg. for from four days to five weeks. Results showed that administration of cortisone in doses of 50 or 100 mg. daily did not produce diuresis, but when 300 mg. was given for three days, followed by 100 mg. for seven days, diuresis regularly ensued. The onset of diuresis occurred from two to eight days after withdrawal of cortisone, but appeared during corticotropin administration as early as the third or fourth day of therapy. In most patients diuresis was followed by an increase in serum albumin, lowering of serum cholesterol, a decrease in proteinuria, and a drop in sedimentation rate. The majority of the patients showed a tendency, slight or moderate, to revert to their biochemically abnormal state. In two patients treated with corticotropin during the edema-free stage there was pronounced reduction in proteinuria. One of the four patients treated with cortisone died of an intercurrent infection and another in renal failure. Two are in remission, one completely and the other with albuminuria only. One of the three patients treated with corticotropin showed a persistent tendency to recurrent edema despite five courses of therapy. The other two were apparently well except for moderate proteinuria. In the authors' small series of patients, those with the shortest history appeared to respond with a more prolonged and complete remission than patients in whom the disease had been present for longer periods. In one patient, loss of potassium during spontaneous diuresis, in conjunction with a low potassium intake due to anorexia, resulted in pronounced lowering of the serum potassium concentration, absent T-waves in the electrocardiogram, and pronounced lassitude and weakness.

Retrolental Fibroplasia.—Of 629 premature infants studied at two hospital units between 1947 and 1951, 56 had retrolental fibroplasia. Only three of these cases occurred before 1950, when the care of premature infants in an oxygen tent became a routine measure. In the early stages of this condition there is excessive fullness of the retinal veins, then increasing tortuosity of the retinal arteries, followed by edema of the retina and appearance of new blood vessels at the periphery of the retina. These proliferate rapidly and extend into the vitreous as little capillary tufts, or occasionally form an extensive lace-like film. The retinal edema may become very extensive, and as the disease progresses it is associated with detachment of the retina. The retinal picture in the early stages presents many of the features suggestive of venous obstruction. The longer the venous obstruction lasts the greater is the new vessel formation. Presumably only when blood vessels have proliferated into the vitreous can fibroblasts associated with them give rise to fibroplasia. If the venous obstruction subsides in a relatively short time, the prognosis is good provided that extensive retinal detachment has not already occurred. Thus the term "retinopathy of prematurity" has much to recommend it. In 6 of the 56 infants the early changes of the disease were noted to regress rapidly when the infant was subjected to high tensions of oxygen. Variations in the method of administration of oxygen appear to be closely linked with the incidence of retrolental fibroplasia. It is suggested that retrolental fibroplasia can develop when the tension of oxygen available to the tissues of the premature infant is suddenly lowered by transfer from 60% oxygen to normal air. An infant receiving oxygen by face mask only, never having been acclimatized to a high tension of oxygen, cannot subsequently be deprived of it; apparently such an infant does not develop retrolental fibroplasia.

British Journal of Ophthalmology, London

36:401-464 (Aug.) 1952

Uses and Limitations of ACTH and Cortisone in Ophthalmology. A. C. Woods.—p. 401.
Clinical Method of Observing Changes in Rate of Flow of Aqueous Humour in Human Eye. I. Normal Eyes. D. Langley and R. K. MacDonald.—p. 432.
Survival of Retinal Elements in Subcutaneous Homografts. G. M. Wyburn and P. Bacsich.—p. 438.
Elschnig's Capsulo-Iridectomy. S. J. H. Miller.—p. 444.
Melanoma of Optic Disk. M. W. Paterson.—p. 447.
Relationship Between Ganglion Cell Layer of Retina and Optic Nerve in Rat. J. T. Eayrs.—p. 453.

British Journal of Radiology, London

25:395-450 (Aug.) 1952

*The Sieve in Radiotherapy. B. Jolles.—p. 395.
Protection of Laryngeal Airway During Swallowing. G. M. Ardran and F. H. Kemp.—p. 406.
Artificial Radioactive Sources for Interstitial Therapy. W. K. Sinclair. —p. 417.
A Gun for Interstitial Implantation of Radioactive Gold Grains. H. J. Hodt, W. K. Sinclair and D. W. Smithers.—p. 419.
Radioactive Tantalum Wire Implantation as Method of Treatment for Early Carcinoma of Bladder. D. M. Wallace, J. E. Stapleton and R. C. Turner.—p. 421.
Adjustable Diaphragm for Defining X-Ray Treatment Beams. B. M. Wheatley and D. W. Smithers.—p. 425.
Intensity Factors and Whole Body Irradiation. E. Paterson, C. W. Gilbert and J. Matthews.—p. 427.
Effects of X-Rays on Insulating Properties of Polytetrafluoroethylene (P. T. F. E.). W. E. Liversage.—p. 434.
Tuberculosis of Hip Joint in Children: Tomographic Study. F. G. Wood and M. C. Wilkinson.—p. 437.

The Sieve in Radiotherapy.—The principle of the sieve or grid method of radiotherapy described by Jolles is that through a lead chessboard sieve, with 0.5 to 1.5 cm. squares, portions of a tumor are exposed to radiation while other portions are protected, in order that important structures remain undamaged and can take part in repair. In superficial tumors, after a suitable period of treatment, another lead sieve, in which the order of opaque and transparent areas is reversed, is used, and the previously untreated areas are exposed, while the already treated areas are protected. A treatment-free interval may sometimes elapse before the change-over from one sieve to its complementary sieve is made. In the case of deep-seated tumors only one sieve is used or, after a treatment-free interval, the treatment is resumed through a sieve over the opposite side of the body. On occasion a second series of treatments through a complementary sieve can also be given. The time factor, which in the orthodox methods of treatment is related to the cell life cycle and to the attainment of the highest tolerance doses with avoidance of damage to the skin, assumes a new complexion in this method. Exactness is essential in every detail of the procedure. The time and energy expended, however, do not greatly exceed that taken in proper and careful beam-directed therapy. Sheets of lead 1 to 3 mm. thick were used for the preparation of the sieves, which are either cut or punched out, care being taken not to damage the corners of the adjacent squares. Each lead square is backed by a 1 mm. thick aluminum square. Lead rubber has been discarded because of excessive transmission and lack of rigidity. Lead should be superseded by tungsten for beams of radiation generated at higher voltages. To hold the sieve in position the author has incorporated it in a mold made of "stent," a thermoplastic dental wax. For tumors of head, neck and chest a cellulose acetate and glass fiber woven material has been used as an excellent substitute for plaster of paris. The patient with a deep-seated tumor is kept in a horizontal position and the sieves are recessed in a sliding platform. The author applied the sieve technique in a small number of patients with malignant disease between 1941 and 1945. Since then the technique has been further improved, and by the end of 1951, a total of 54 patients with accessible and deep-seated tumors have been treated with it. The accessible tumors included tumors of the skin, anus, vulva, and breast and metastases in the lymph nodes of the neck and groin. The deep-seated tumors included carcinoma of the uterus, lung, and bowel. The sieve method is not advocated for small and simple lesions, in which other procedures are adequate, but the procedure is worth while in cases in which conventional methods of irradiation have little to offer.

British Medical Journal, London

2:351-402 (Aug. 16) 1952

Coronary Thrombosis and Its Response to Treatment. A. R. Gilchrist. —p. 351.
*Tuberculous Meningitis: Some Aspects of Its Treatment. A. R. Somner. —p. 356.
Observations on Laboratory Diagnosis of Tuberculous Meningitis. R. W. S. Harvey.—p. 360.
Hypersensitivity, Stress, and Toxicity. T. W. Lees.—p. 363.
Nematodes, Nervous Disease, and Neurotropic Virus Infection: Observations in Animal Pathology of Probable Significance in Medical Neurology. J. R. M. Innes and C. Shoho.—p. 366.
*Hereditary Methaemoglobinaemic Cyanosis. A. Codounis.—p. 368.
Methaemoglobinaemia Due to Nitrates in Well-Water. W. A. B. Campbell.—p. 371.
Cutaneous Reactions to Injection of Progesterone Solutions into Skin. V. R. Pickles.—p. 373.

Tuberculous Meningitis: Some Aspects of Treatment.—The 26 cases reviewed were treated with streptomycin or dihydrostreptomycin from October, 1948, to May, 1951. In January, 1952, 14 of the patients were alive, with a minimum observation period of 9 months and a maximum of 35 months since the beginning of treatment. Twelve of the 14 survivors had completed the treatment and recovered. The average duration of the systemic administration of the drug to the survivors was a little over six months, and intrathecal injections were given to each on an average of 75% of the days on which intramuscular streptomycin was given. None of those who died were treated longer. Deafness was the most toxic manifestation of streptomycin. Eight of the surviving patients received dihydrostreptomycin sulfate, both intramuscularly and intrathecally, and all but one have impairment of hearing. Three patients were treated entirely with dihydrostreptomycin, and all have become totally deaf. The other four patients were treated partly with dihydrostreptomycin and partly with streptomycin calcium chloride complex; one patient is totally deaf and three show varying degrees of deafness. The sugar content of the cerebrospinal fluid was found to be the most valuable index of progress, and treatment should never be discontinued so long as this level is below 50 mg. per 100 ml. The protein level and cell count may not return to normal for many months after treatment has ceased. The intrathecal administration of streptomycin was found to be an additional factor in the development of spinal block in some cases. Spinal block occurred in 11 of the 26 cases under dis-

cussion, sometimes more than once. Partial block was much commoner than complete block. The alternate use of the cisternal route was tried in some patients. One important drawback to repeated cisternal streptomycin injections has been the occurrence of hemorrhage into the subarachnoid space. Patients with miliary tuberculosis and tuberculous meningitis may have tubercles of the choroid. They were seen in 7 of the 10 patients who also had miliary tuberculosis. During the treatment of these seven cases only slight changes have been observed in the choroidal tubercles. None disappeared completely, but it may be surmised that the phase of arrest or healing has been reached.

Hereditary Methemoglobinemic Cyanosis.—Codounis presents a geneologic tree of a family with hereditary methemoglobinemic cyanosis. The family could be followed through five generations, and among 85 members there were 10 with congenital cyanosis. The dominant symptom is the cyanotic hue, which is violet and sometimes even brownish. The term cyanosis does not exactly convey the color of these patients. The hue is usually dichromatic between the blue and the red, or the violet blue and the brown. The degree of cyanosis is relative to the amount of methemoglobin present in the blood, and varies with each patient. The disease is known also as congenital or familial cyanosis or as methemoglobinemic idiopathic cyanosis. It is hereditary in both sexes but it predominates in men. It is quite distinct from cyanosis due to congenital heart disease or arteriovenous shunt, polycythemia, or drug intoxication. Although 42 out of 92 reported cases occurred in Greeks, the disease has been reported in many other countries, always in Caucasians.

2:403-454 (Aug. 23) 1952. Partial Index

End-Results in Primary Sterility. S. Bender.—p. 409.
Notes on Cuirass Respirators. W. H. Kelleher, A. B. K. Wilson, W. R. Russell and F. D. Stott.—p. 413.
Neurological Complications Associated with Insecticides and Fungicides. A. M. G. Campbell.—p. 415.
Psychiatric Survey of Random Sample of Skin Out-Patients. S. P. Hall-Smith and A. Norton.—p. 417.
*Case of Congenital Ichthyosiform Erythrodermia of Brocq Treated by Hypnosis. A. A. Mason.—p. 422.
*Fatal Aplastic Anaemia After Chloramphenicol Treatment. L. A. Hawkins and H. Lederer.—p. 423.
*Fatal Aplastic Anaemia After Chloramphenicol. B. Wolman.—p. 426.

2:455-524 (Aug. 30) 1952. Partial Index

Postgraduate Education. F. Fraser.—p. 455.
Impressions of Graduate Medical Education in the U. S. A. W. M. Arnott.—p. 461.
Impressions of Postgraduate Education in America. C. F. Hawkins.—p. 464.
Medical Progress and Medical Education. A. M. Jones.—p. 466.
Problems and Responsibilities of University Surgical Unit. D. M. Douglas.—p. 469.
Whither Forensic Medicine? J. Glaister.—p. 473.
Manchester Health Centre: Educational Function. C. F. Brockington.—p. 490.
Education in General Practice: Experiment at St. Mary's Hospital. G. Barber.—p. 490.
Training of Medical Students in General Practice in Sheffield. W. Hobson.—p. 491.

Ichthyosiform Erythrodermia Treated by Hypnosis.—Mason describes a boy, aged 16, who had been born with a thick skin, which became progressively thicker, darker and more papilliferous. He had been treated without avail at several hospitals. The lesions were severest on the hands, feet, thighs, and calves and least severe on the upper arms, abdomen, and back. The skin on face, neck and chest appeared normal, although chest skin became papilliferous on two occasions, when it was grafted to areas from which ichthyosiform skin had been excised. In February, 1951, the suggestion was made under hypnosis that the left arm would clear. Five days later, the horny layer softened, became friable, and fell off. The skin underneath was slightly erythematous, but normal in texture. The erythema faded in a few days, and after 10 days, the arm was clear down to the wrist. Later the right arm was treated by hypnosis and then the legs and the trunk. The palms were cleared but the fingers were not greatly improved. The arms, which had been 80% covered, are now 95% cleared. The buttocks, which had been heavily covered, are now 60% cleared. The thighs, which had been completely covered, are now 70% cleared and the legs and feet, which had been completely and heavily covered, are 50% cleared. The improvement in the mental state was as dramatic as the organic improvement. During the first few weeks clearance was rapid and dramatic. While there has been no appreciable change during the last few months, neither has there been a relapse.

Fatal Anemia After Chloramphenicol Treatment.—Two children were treated with chloramphenicol for whooping cough during January and February, 1952. Jaundice appeared in March, and minor purpuric manifestations in May. In mid-June both died from uncontrollable hemorrhages associated with an aplastic bone marrow. Chloramphenicol was suspected as the cause, especially since a number of deaths from aplastic anemia after treatment with chloramphenicol had been reported in the United States. The two cases are described together with the hematological and necropsy findings. The authors suggest that the toxic action of chloramphenicol is comparable to that of other aminobenzene and nitrobenzene derivatives.

Fatal Aplastic Anemia After Chloramphenicol.—This paper describes fatal aplastic anemia and hepatitis in a boy, aged 6, following treatment with chloramphenicol. Emphasis is placed on the danger involved in the prolonged administration of this drug.

Deutsche medizinische Wochenschrift

77:1009-1040 (Aug. 29) 1952. Partial Index

New Methods of Artificial Infant Feeding. K. Klinke.—p. 1009.
*Meningitic Form of Bornholm Disease, "Myalgic Meningitis." A. Windorfer and M. Born.—p. 1012.
Conservation of Human Milk with Streptomycin and Citric Acid. H. Bindewald.—p. 1015.
Clinical Aspects of Leptospiroses. P. Kummer.—p. 1017.
Clinical Aspects of Glycogen Storage Disease. W. Selberg.—p. 1020.
Prevention and Treatment of Congenital Syphilis: Leipzig Scheme. J. Oehme.—p. 1024.

Meningitic Form of Bornholm Disease.—The term Bornholm disease generally refers to epidemic myalgia or pleurodynia, characterized by fever and severe pains in the chest and upper abdomen. It has been recognized, however, that there are three distinct clinical fevers that are caused by the Coxsackie viruses and are closely related to Bornholm disease: (1) herpangina, in which vesicles or ulcers develop on tonsils and palate; (2) the three day fever or summer influenza; and (3) so-called meningitis myalgia, with symptoms of serous meningitis. During the summer of 1951, an epidemic of Bornholm disease occurred in Stuttgart in which the cases with meningitic symptoms were especially numerous. In 26 of the cases observed at the children's clinic of these authors there were meningitic symptoms, and in 9 typical symptoms of Bornholm disease. In the last group abdominal symptoms predominated, so that in three cases appendicitis was suspected. Seven of the children with meningitis or meningoencephalitic symptoms had been suspected of having poliomyelitis, meningitis, tuberculous meningitis, encephalitis, typhoid fever, scarlet fever, or infectious diseases with meningism and appendicitis. The diagnosis of myalgic meningitis was verified by the demonstration of the Coxsackie virus A_2 in the stools of two boys who attended the same class; in other cases neutralization or complement fixation tests proved the causal role of the Coxsackie virus.

Giornale di Clinica Medica, Parma

33:575-686 (June) 1952. Partial Index

*Studies on Hepatic Cirrhosis. II. Hemolysis in Pathogenesis of Normocytic and Macrocytic Anemia of Morgagni-Laënnec Cirrhosis. Studies on Hemoglobin and on Changes Caused by Therapy with Lipotropic Factors. M. Falzoy, G. D'Antuono and E. Irlando.—p. 575.
Importance of the Exogenous Factor in Agranulocytosis and Granulocytosis. F. Bonati and P. Ottaviani.—p. 591.
Late Hemorrhagic Syndrome in Patient After Splenectomy. L. Rossi and D. Rizzi.—p. 612.

Studies in Hepatic Cirrhosis.—Studies were made in eight men between the ages of 35 and 66 years, with Morgagni-Laënnec cirrhosis in the ascitic phase to ascertain whether eventual changes in blood and plasma volume influence the number of erythrocytes and the quantity of hemoglobin present in these patients. The ways of controlling the alterations of the hemolytic processes and the efficiency of lipotropic factors were also studied. The diagnosis of cirrhosis was confirmed in five patients

by puncture biopsy and in the others at autopsy. Three patients had mild jaundice; all of them had a mild anemia (2,300,000 to 4,500,000 erythrocytes per cubic millimeter of blood) which in three was normocytic and in the others macrocytic. The blood volume, determined with congo red and the photoelectric colorimeter, varied in each person according to the clinical stages of the disease. It was within normal values in four and slightly increased in the others. Hypervolemia is rather frequent in patients with cirrhosis of the liver, and it does influence the erythrocyte count and the hemoglobin value. Increased plasma volume was present in all the patients and was pronounced in five. The average value for circulating hemoglobin was 11.8 gm. per 100 cc. of blood. Bilirubin was increased, and this was attributed not to a pathological increase of hemolysis but to inefficiency of liver assimilation. Elimination of bilin through the feces was normal, whereas excretion through the kidneys was increased. Only methionine was given orally and intravenously to these patients. It had little or no effect, which suggests that one lipotropic factor alone is insufficient to improve the metabolic deviations of the cirrhotic liver. Better results may be obtained by combination of various lipotropic factors because of their synergistic action.

Irish Journal of Medical Science, Dublin

319:289-336 (July) 1952

Role of Surgery in Vascular Lesions of Brain. A. A. McConnell, J. P. Lanigan and C. A. Gleadhill.—p. 289.

SYMPOSIUM ON ANURIA

Anuria Treated with Cortisone. H. F. Moore.—p. 298.
Management of Anuria. W. J. E. Jessop.—p. 299.
Management of Anuria. T. J. D. Lane.—p. 302.
Anuria in Pregnancy. A. P. Barry.—p. 305.
Modified Electroconvulsive Therapy. J. P. Malone and A. M. Blayney. —p. 315.
*Green Teeth. E. Hackett.—p. 324.

Green Teeth.—When a Rh-negative woman marries an Rh-positive man, she may conceive an Rh-positive fetus. The fetus may stimulate her to produce anti-Rh antibodies, which pass across the placenta and attack the fetal erythrocytes. Large numbers of red cells are destroyed and the hemoglobin released is broken down into pigments, which give the baby severe jaundice. Some of those who have had severe jaundice may, if they survive, show a curious vestige of the symptom when their first teeth appear; they have green teeth. This is due to the altered blood pigment being deposited in the tooth buds. It varies from green to brown and is most frequently seen in the central incisors. About 5% of such infants are affected in this way, but the second dentition is normal.

Lancet, London

2:347-392 (Aug. 23) 1952

Recent Trends in Treatment of Pulmonary Tuberculosis. F. A. H. Simmonds, R. Laird and N. Macdonald.—p. 347.
Superficial Staphylococcal Infection. F. C. O. Valentine and S. P. Hall-Smith.—p. 351.
Colles Fracture of Radius: Method of Treatment. D. Walker.—p. 354.
*Recognition of Functional Disorders of Small Intestine. A. M. Gill and E. C. Falle.—p. 356.
Lead Paint: Hazard to Children. J. G. Millichap, K. R. Llewellin and R. C. Roxburgh.—p. 360.
Management of Hypotension During Anaesthesia. J. M. Inglis.—p. 362.
Primary Clostridial Pneumonia: Report of Case. A. E. O'Donnell.—p. 367.

Functional Disorders of Small Intestine.—The colon is usually regarded as the site of functional disorders of the bowel. In a series of 1,500 new patients attending the gastric clinic of a London hospital, however, eight were found who had long-standing abdominal pain, obscure in origin and resistant to treatment, due to an abnormality of the ileum, demonstrable on radiological examination. The histories of these eight patients are given. The first of them taught the authors that ileal spasm associated with abdominal symptoms could be sufficiently prolonged and severe to mimic organic disease, and as a result other cases came to light. In these cases the authors had previously failed to recognize that the disorder lay in the small intestine. Some of these patients had diarrhea, others were constipated, and none had normal defecation. Whereas spasm of the colon is closely related to manifest anxiety, has a well-defined clinical picture, and responds well to reassurance, belladonna, and phenobarbital, the ileal syndrome is less obviously psychosomatic in origin, has a more complex symptomatology, and has proved very resistant to treatment. Although the two syndromes are usually distinct, a case is occasionally seen showing some features of both syndromes at the same time.

Minerva Ginecologica, Turin

4:259-298 (June) 1952. **Partial Index**

*Clinical Application of Fibrinolytic Activator: Intraperitoneal Administration of Streptokinase and Streptodornase with Recovery. G. Vecchietto.—p. 259.
Resuscitation by Transfusion of Oxygenated Blood into Umbilical Vein of Child with Pronounced Asphyxia, and Injection of Oxygen into Umbilical Vein of Child with Pronounced Apnea due to Maternal Narcosis. G. Valle.—p. 262.
Ovarian Reactivity to Hypophyseal and Chorionic Gonadotropins After Treatment with *p*-Oxypropiophenone. L. Milani and G. Sangiorgi. —p. 267.

Intraperitoneal Use of Streptokinase and Streptodornase.—A 23-year-old woman admitted with diagnosis of bilateral tuberculous salpingitis was given 1 gm. of streptomycin daily for one week after which bilateral adnexectomy and appendectomy were performed and 1 gm. of streptomycin was left in the peritoneal cavity. The postoperative course, during which the patient received 1 gm. of streptomycin daily, was normal. On the 11th postoperative day the patient developed abdominal pain and intense vomiting. Ileus became so severe that a second operation was performed on the 15th day. Many intestinal loops had firmly adhered to the abdominal wall at the point of the first incision; the intestinal lumen was obstructed in six places by firm adhesions; and there was also a thick peritoneal fluid. After the adhesions were separated, 1 gm. of streptomycin was introduced into the peritoneal cavity. Ten hours after the operation 1 cc. of an isotonic solution containing 7,400 units of streptokinase and 850 units of streptodornase ("varidase") was injected into the peritoneal cavity through a small rubber tube that had been inserted during the operation. The patient received this solution every three hours for three days, and then every six hours for five days; 1 gm. of streptomycin was also given concurrently. The intestine showed normal motility a few hours after the operation and remained normal. The patient's condition improved. Eight days later the treatment was suspended and the patient was discharged. Studies before and after the second intervention suggested that a definite deficiency of fibrinolytic power of the blood serum and the peritoneal fluid had caused the symptoms that followed the first operation.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

96:1977-2052 (Aug. 16) 1952. **Partial Index**

Electromyography: I. The Electromyograph. H. den Hartog, F. A. Muller, and L. H. van der Tweel.—p. 1989.
Id.: Examination with the Electromyograph. A. M. Lorentz de Haas. —p. 1993.
*Clinical Picture Resembling Infectious Mononucleosis, Caused by *Para*-Aminosalicylic Acid. P. Sjoukes.—p. 2001.
Rhabdomyosarcoma of Ear, Orbit and Palate, Especially in Children. R. Eibergen.—p. 2007.

Picture Resembling Infectious Mononucleosis Caused by *Para*-Aminosalicylic Acid.—The following complications have resulted from treatment with *p*-aminosalicylic acid: erythroderma, gastrointestinal disturbances, fever alone or combined with chills, headaches, itching and exanthem, dry cough, muscular spasms, jaundice and hepatic disturbances, glycosuria, leukopenia, hypoprothrombinemia, albuminuria, and hematuria. This report describes five patients in whom the following symptom complex appeared during treatment with *p*-aminosalicylic acid: general malaise, headache, fever, exanthem, swelling of the lymph nodes, and, in the blood picture, lymphocytosis with pathologic mononuclear cells. Three of the five patients also had splenomegaly. Since the Paul-Bunnell reaction was negative in all cases, and the fever and pathological mononucleosis subsided soon after the administration of *p*-aminosalicylic acid was interrupted but recurred again together with the exanthem after resumption of *p*-aminosalicylic acid treatment, it is assumed that this was not an infectious mononucleosis, but rather a reaction of hypersensitivity to *p*-aminosalicylic acid.

Nordisk Medicin, Stockholm

48:1021-1052 (July 25) 1952. **Partial Index**

Quiet Art. Notes on a Physician's Art and Science, His Ideals and Philosophy. A. Aggebo.—p. 1021.
*Reiter's Syndrome, Prostatovesiculitis and Infectious Nonbacterial Pyuria. R. Romanus.—p. 1024.
Pathogenesis of Dumping Syndrome. C. Munck.—p. 1031.
Complications Affecting Hearing During Dihydrostreptomycin Treatment. G. Falkenfleth.—p. 1033.
Acute Leukemia in Polycythemia Vera Treated with Radioactive Phosphorus. C. J. Bjerkelund.—p. 1037.

Reiter's Syndrome, Prostatovesiculitis, and Abacterial Infectious Pyuria.—Romanus says that the prostate and seminal vesicles occupy a central position as foci of infection in disorders such as Reiter's syndrome and nonbacterial infectious pyuria and play an important part in the acute symptomatology of these diseases. In most of the published cases of Reiter's syndrome there is no mention of rectal examination of the prostate and seminal vesicles. These organs should be carefully examined in Reiter's syndrome and similar disorders, and the diagnosis of urethritis or cystitis should not be made until prostatovesiculitis is excluded. During the stage of acute symptoms from the urinary tract the examinations must be made with care. On termination of the acute symptoms these adnexa must be reexamined, whether or not the subjective symptoms from the urinary tract have wholly disappeared, as prostatovesiculitis may be silent in this phase and demonstrable only through rectal palpation and examination of the expressed secretion. If the patient is discharged while changes are still present in prostate and vesicles, there is danger of exacerbation of the urogenital symptoms, with recurrence from the joints and late disturbances in the form of ankylosing spondylitis. In acute Reiter's syndrome mapharsen, streptomycin, and blood transfusions should be tried. The usual urinary antiseptics, sulfonamides and penicillin, are without avail here. In aseptic pyuria arsphenamine, mapharsen and similar arsenic preparations are the method of choice; they are also effective in some cases of Reiter's syndrome. In many cases of nonspecific prostatovesiculitis arsphenamine has the same marked effect as in aseptic pyuria.

Presse Médicale, Paris

60:1139-1154 (Aug. 23) 1952. **Partial Index**

Bacterial Resistance to Antibiotics. P. Bordet.—p. 1139.
Where Does Anatomical Anomaly Begin? R. Dufour, Rigaud, H. Cabanié and A. Gouazé.—p. 1141.
*Antibiotic Treatment of Subacute Bacterial Endocarditis. R. Raynaud, J. R. D'Eshougues and M. Brochier.—p. 1143.

Antibiotic Treatment of Subacute Bacterial Endocarditis.—The bactericidal properties of antibiotics cannot be accurately determined by laboratory tests. This explains many of the failures encountered in treating subacute bacterial endocarditis, and also some paradoxical cures obtained with one or more antibiotics to which the causative organism was apparently insensitive in vitro. Experience has shown that penicillin is almost always bactericidal, and that streptomycin reinforces its action. Penicillin and streptomycin in combination cure many cases resistant to penicillin alone. Aureomycin, chloramphenicol (chloromycetin®), and terramycin are bacteriostatic in the average doses usually employed; their effect on the temperature and general condition is rapid and beneficial, but when they are discontinued, even after prolonged administration, the temperature generally rises and the infection resumes its course. They become bactericidal only when given in massive doses (hard to tolerate), and especially when combined with streptomycin. Except in the case of enterococci against which a combination of aureomycin and terramycin is usually efficacious, treatment with aureomycin, chloramphenicol, or terramycin should be followed immediately by a combination of penicillin and streptomycin. Penicillin, on the other hand, should never be combined with aureomycin, chloramphenicol, or terramycin, because these antibiotics inhibit its action, which can only be exercised on bacteria in the process of multiplying. Discovery and suppression of bacterial foci not accessible to antibiotics is essential if relapses are to be prevented. Myocardial involvement indicates a poor prognosis, because while antibiotics may cure the infection, they cannot prevent the development of a cardiac insufficiency, which will eventually become irreversible. Subacute bacterial endocarditis with positive blood cultures usually responds well to treatment with antibiotics; when the blood cultures are negative, the disease is more serious, causing greater valvular and myocardial damage, visceral involvement, and arterial complications less accessible to the antibiotics. In the first form of the disease the protein balance is comparatively unchanged and the gamma globulin level, even when increased, remains below 30%; in the second, protein disturbance is considerable and the gamma globulin level may reach and exceed 30 or 40% of the total blood proteins. Blood protein determinations therefore furnish valuable diagnostic and prognostic information, which should be taken into consideration in deciding on a scheme of treatment for subacute bacterial endocarditis.

Proceedings of Royal Society of Medicine, London

45:483-566 (Aug.) 1952. **Partial Index**

Surgery and the Surgeon. P. Wiles.—p. 493.
Diagnostic Test in Obliterative Arterial Disease of Legs. L. McDonald and R. Semple.—p. 497.
*Cranial Arteritis. K. M. Robertson.—p. 500.
*Charcot Joints in Diabetes Mellitus. M. M. Martin.—p. 503.
Laboratory Investigations on Relation of Fluorine to Dental Caries on Tyneside and District. G. N. Jenkins, P. A. Armstrong and R. L. Speirs.—p. 517.
Accuracy of X-Ray Cephalometry in Utero. D. Crichton.—p. 535.
Valvotomy in Pregnancy. R. C. Brock.—p. 538.
William Stewart Halsted and His Influence on Surgery. A. Blalock.—p. 555.

Cranial Arteritis.—Cranial or temporal arteritis is more frequent than is generally assumed; Robertson observed 30 cases in eight years. The supposed rarity is explained by failure to recognize the condition, although the disease presents a striking picture. The patient is elderly; the onset is subacute, and the early symptoms include loss of energy with failure of appetite, depression, headache, rheumatism, fever, sweating, and weight loss. Any one of these features may predominate, though headache, by far the most constant symptom, may not be present from the onset. When it does develop, it is severe, constant, and usually fails to react to analgesics. There is pronounced tenderness of the scalp, even light pressure being intolerable. Pain during mastication is another almost constant symptom. In a few cases transient neurological lesions appear, and in some, symptoms suggesting gastric ulcer are present. Results of clinical examination are disappointingly negative, and even the tender, swollen cranial arteries may be overlooked. In most cases secondary anemia develops and the white blood cell count rises. The anemia responds only to blood transfusion. The patient's appearance is perhaps the most suggestive feature. The face is lined, with evidence of weight loss, the eyes lack luster, and there is an expression indicative of depression and loss of emotional tone. When vision is impaired or lost, fundal changes are surprisingly insignificant. Treatment is unsatisfactory, but section of affected cranial arteries often reduces local pain and headache. Local infiltration of these vessels with anesthetic has the same result. Salicylates appear to be symptomatically more effective than other analgesic agents. The author feels that of all the names suggested cranial arteritis is most satisfactory, although the disease is not confined to these vessels. In six of his cases, he was able to try corticotropin (ACTH) and cortisone, with dramatic improvement while this treatment was continued, but relapse after the hormone treatment was stopped. Failure to respond to antibacterial treatment makes it improbable that infection plays a part. The general aspects, the histopathology, and the response to cortisone and corticotropin, all suggest that the illness is related to the collagen diseases. A senile hypopituitary state could underlie this disease.

Charcot Joints in Diabetes Mellitus.—Lesions of the feet in patients with diabetes mellitus are generally ascribed to occlusive vascular disease or sepsis and the importance of peripheral nerve disease as a causal factor is insufficiently recognized, although painless neuropathic ulcers and Charcot joints are by no means uncommon in diabetes. In a recent investigation at King's College Hospital, 12 cases were discovered in which there were bone and joint lesions closely resembling Charcot joints, which suggests that diabetic arthropathies may be fairly common. In four of 12 cases there was involvement of the interphalangeal or metatarsophalangeal joints. In three cases radiographs of the

feet showed attenuation of the metatarsal shafts, which tapered distally, absorption of the metatarsal heads, and deformities of the foreparts of the feet. In five cases the midtarsal joints were affected, giving rise to eversion and external rotation of the forepart of the foot and flattening of the longitudinal arches. The radiological appearances were those of hypertrophic arthropathy with considerable destruction of subarticular bone and excessive new bone formation in the surrounding soft tissues but without periosteal reaction or evidence of bone absorption. In the patients with lesions of the interphalangeal or metatarsophalangeal joints the arthropathies were often discovered only after x-ray examination. In the cases with arthropathies of the midtarsal articulation, deformity usually called attention to the condition. Occlusive peripheral vascular disease was found in only one of the 12 cases; most patients had strong pedal pulses. Soft tissue lesions of the feet were present in six patients. Five patients gave a history of perforating ulcers or septic lesions about their feet. In three of these cases the affected joints were normal radiologically at the time the patients were treated for their ulceration. Pathological evidence of nerve disease was obtained by nerve biopsies in four cases. There is no specific cure for this complication beyond rigid control of the metabolic disorder. With adequate diabetic treatment, however, recovery may be expected in 60% of cases within six months to two years, unless the neuropathy has been of long standing. With correction of the nerve disorder the progress of the bone changes appears to be halted.

Progrès Médical, Paris

80:275-304 (June 10) 1952. **Partial Index**

*Cancer of Thyroid Gland. M. Albeaux-Fernet.—p. 275.
Severe Asthmas. E. Gascard.—p. 283.

Cancer of the Thyroid Gland.—Primary thyroid carcinomas develop in two stages: intracapsular and extracapsular. Cancer in the intracapsular stage appears in a goitrous nodule localized in one lobe; it can be detected by palpation as a hard lump in an otherwise normal thyroid gland. A tumor that has reached the extracapsular stage has infiltrated the entire gland, broken through the thyroid capsule, and spread into the cellular tissues of the neck, invading the adjacent structures, encircling the nerves, and displacing the vessels. Regional lymph node involvement usually remains limited to one side for a long time, and metastasis takes place by the lymphatic or circulatory route according to the histological type of the cancer. Papillary carcinoma, which accounted for only 30% of thyroid cancers up to 1937, now occurs in 61% of cases, while carcinoma developing in a nodular goiter holds second place, having dropped from 38% to 18%. Systematic histological examination of goiters surgically removed shows a large percentage of latent cancers; nontoxic goiters and adenomas, however small, should therefore be removed as soon as found. The primary cancer in some cases is so small that it cannot be detected by even the most careful palpation and comes to light only after the appearance of metastases has led to removal of the gland. The long period of latency and slow development of papillary carcinomas in the thyroid make early detection of these tumors especially important, because removal may be curative. Metastases, found especially in the lungs and pleura and in the bones, contraindicate surgical intervention, but late metastases appearing after removal of the primary tumor may be treated successfully with radioactive iodine. Thyroid cancer is frequent in the young, especially in children, latent nodules often becoming evident during puberty; females are affected in the proportion of 3 to 1 over males.

Revista Española de Tuberculosis, Madrid

21:253-334 (May) 1952. **Partial Index**

*Isonicotinic Acid Hydrazine in Treatment of Pulmonary Tuberculosis. J. Arrospide.—p. 253.
Laboratory Observations with "Laminoculture" in Treatment of Tuberculosis with Isonicotinic Acid Hydrazide. F. J. Guerra Sanz and E. Tovar Martín.—p. 289.

Isonicotinic Acid Hydrazine in Treatment of Pulmonary Tuberculosis.—Isonicotinic acid hydrazine (rimifon®) was given for from 6 to 12 weeks to 38 patients with severe pulmonary tuberculosis, 5 of whom had advanced lesions. Previous treatment had consisted of administration of streptomycin and *p*-aminosalicylic acid, or, in a few cases, amithiozone (TB_1). Improvement was rapid; the patients felt better and gained weight, and the general and respiratory symptoms regressed. Radiographic and anatomical signs of improvement were substantial, the best results being obtained when isonicotinic acid hydrazine was given in combination with streptomycin. Complete closure of 3 of 24 cavities and marked reduction in the size of six others was secured when the two drugs were combined. Administration of preparations containing ephedrine and belladonna should be suspended while isonicotinic acid hydrazine is being given, and dosage should be adjusted to individual requirements. In general, the doses now used are 2 mg. per kilogram of body weight for the first five days, 4 mg. the next five, and 6 or 8 mg. thereafter. Tolerance was good, and no appreciable changes were noted in renal or hepatic function. The improvement resulting from the use of isonicotinic acid hydrazine should not lead to neglect of such measures as collapse therapy and a hygienic diet. Other bacteriostatic agents, especially streptomycin, should be used with isonicotinic acid hydrazine to delay the appearance of resistance to the drug, which has already been noted in some cases. Patients under treatment with these drugs should be isolated to prevent the spread of resistant strains of bacilli.

Semaine des Hôpitaux de Paris

28:2559-2612 (Sept. 2-6) 1952. **Partial Index**

Sickle Cell Anemia; Two Cases Observed Among the Negroes of Guadeloupe. J. Languillon.—p. 2559.
*Amebic Abscess of Liver; Question of Medical or Surgical Treatment. H. Grizaud.—p. 2564.
Front-Line Surgery During Tonkin Campaign (1947-1950). Sainz —p. 2568.

Amebic Abscess of Liver.—Grizaud, in his capacity as surgeon of the French colonial hospital in Saigon, Indo-China, operated on 10 men with amebic abscess of the liver. Most of the patients first had been treated conservatively, partly in the vain hope that surgical intervention could be avoided, and partly because of late diagnosis. Of the 10 patients, 3 died and 7 recovered. On laparotomy, the large volume of the abscess was striking. Early diagnosis made with the aid of liver puncture and followed immediately by surgical intervention would have permitted rapid healing by collapse of the walls and filling up of the cavity of the abscess as soon as drainage was accomplished. On the contrary, conservative treatment with penicillin and emetine hydrochloride did not induce spontaneous drainage of the focus. Surgical treatment thus was only postponed and because of the delay perifocal fibrosis was allowed to develop. The walls of the abscess became organized and the hepatic tissue lost its elasticity, which is the essential requirement for rapid healing. Despite reports in the literature of occasional favorable results obtained with conservative treatment, it seems logical to the author to adhere to the old principles of management of amebic abscess of the liver, i. e., early diagnosis made with the aid of liver puncture and followed immediately by surgical intervention, if suppurative hepatitis has been established. The fate of the patient depends on close collaboration between physician and surgeon and on the rapidity with which the former realizes that he must give precedence to his colleague.

Tubercle, London

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Treatment of Lower Lobe Cavitation in Pulmonary Tuberculosis. A W. B. Macdonald.—p. 194.
Tuberculosis in Mental Hospital Patients. F. R. Hendeles.—p. 201.
Combined Posture and Minor Collapse Treatment. E. Aslett and L. Erin.—p. 206.
The Unexpandable Lung. S. L. O. Jackson.—p. 216.

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Case of Miliary Calcification in Spleen. M. H. Zirk.—p. 226.
Chronic Dry Pleurisy. D. L. Caldwell.—p. 227.
Preventive Value of Mass Radiography Surveys in Boot and Shoe Industry in Northamptonshire. O. E. Fisher.—p. 232.
Experimental Tuberculosis in Cortisone-Treated Guinea-Pigs. H. I. Winner and W. E. D. Evans.—p. 239.
Relapse in Pulmonary Tuberculosis. M. Farquharson.—p. 242.
Painful Injections in Streptomycin Treatment: Trial of Streptomycin Sulphate. J. A. McLeod and A. R. Somner.—p. 245.
Haemothorax Complicating Pneumothorax Refills. D. N. Mitchell.—p. 247.

BOOK REVIEWS

Physical Foundations of Radiology. By Otto Glasser, Professor of Biophysics and Head of Department of Biophysics, Cleveland Clinic Foundation, Cleveland. Edith H. Quimby, Associate Professor of Radiology (Physics), College of Physicians and Surgeons, Columbia University, New York, Lauriston S. Taylor, Chief, Atomic and Radiation Physics Division, National Bureau of Standards, Washington, D. C., and J. L. Weatherwax. Second edition. Cloth. $6.50. Pp. 581, with 112 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1952.

This book offers an accurate, explicit, and objective summary of the physics of modern radiology. The opening historical chapter, which is at once factual and fascinating, is followed by several chapters on the fundamental theoretical concepts of matter, electricity, magnetism, and radiation. The remaining 15 chapters deal with practical considerations of production, measurement, and control of the ionizing radiations and with problems of protection. The book as a whole is a model of compactness, the addition of 150 pages since the first edition being necessitated by new chapters on radioactive isotopes, high energy accelerators, and super-voltage generators, with new tables and about 70 added illustrations. It is commendably free from errors, obscurities, and affectations and is well provided with bibliographies and an index. It will be extremely useful both as an introduction to the subject for students and as a reference work for specialists in the field.

Surgical Gynecology Including Important Obstetric Operations. By J. P. Greenhill, M.D., Professor of Gynecology, Cook County Graduate School of Medicine, Chicago. Handbook of Operative Surgery. Cloth. $8.50. Pp. 350, with illustrations by Angela Bartenbach. The Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1952.

This is a short handbook of surgical gynecology. It is introduced by a brief, nicely organized discussion of the details involved in preoperative and postoperative handling, which was prepared by Dr. Harold M. Loeff. This is a useful and attractive presentation of a group of related fundamental problems, and it is a better one than is to be found in more pretentious texts. The main body of the book is made up of carefully produced line drawings of the essential features of ordinary gynecologic surgical procedures. These are accompanied by a very brief description, usually on an opposite page. It is not certain that these descriptions and illustrations are sufficient for any other than the undergraduate student, although the author has designed the book "for young gynecologists, general surgeons and those physicians in general practice who also perform operations." The handling of the problems of cancer of the vulva, fistulas, cervical cancer, and benign uterine bleeding is too sketchy. There is no question about the author's ability to deal authoritatively with this subject, but he has not done it here.

Vital Statistics of the United States 1949. Part I: Natality, Mortality, Marriage, Divorce, Morbidity, and Life Table Data for the United States. General Tables by Place of Occurrence with Supplemental Tables for Hawaii, Puerto Rico, Virgin Islands, and Alaska, Part II: Natality and Mortality Data for the United States Tabulated by Place of Residence. Prepared under supervision of Halbert L. Dunn, M.D., Chief, National Office of Vital Statistics. United States Federal Security Agency, Public Health Service, National Office of Vital Statistics. Cloth. $2.50; $4.50. Pp. 230; 710. Superintendent of Documents, Govern. Print. Off., Washington 25, D. C., 1951.

These two volumes comprise a mass of uninterpreted statistics covering most aspects of man's mortal life in these United States. Part 1 of this two volume survey sketches the "natality, mortality, marriage, divorce, morbidity and life table data" for the United States and its territories. Part 2 attempts to clearly elucidate the actual site (state and occasionally county) of origin for the natality and mortality tables generally presented in part 1. These two volumes were compiled under the supervision of a physician, and their impressive data should suggest the pace and direction of American life.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Basic Medical Physiology. By W. B. Youmans, Ph.D., M.D., Professor of Physiology, University of Wisconsin, Madison. Cloth. $7.50. Pp. 436, with 130 illustrations. Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1952.

Possibly as a protest against the length of recent, multi-authored textbooks of physiology for medical students, the present work undertakes to cover the subject in 409 pages. The eight sections deal with the following topics: excitation, conduction, and response; circulation; respiration; digestion; nutrition and intermediary metabolism; the endocrine system; kidney and urinary tract; and the nervous system and senses. The presentation is accurate, up-to-date, and compact. Its adequacy depends on the kind of laboratory work that accompanies it and on the extent to which the course as a whole is integrated with others in the curriculum. The subject of reproduction, for instance, is apparently disposed of in about seven pages headed "Endocrine Functions of the Gonads." This may be justified in some medical schools where the student is assured of a complete and critical discussion of the physiology of normal reproduction in courses in gynecology, obstetrics, and genitourinary surgery, but it limits the usefulness of the book to that specific situation. It is also not suitable, and is clearly not intended, for any but medical students. The treatment of some subjects, such as artificial respiration, is brief to the point of being misleading, and much that makes subjects like color vision and taste interesting has had to be omitted. The book also dispenses with a bibliography, but it is well indexed. It will be welcomed by medical students, and deserves the attention of other authors of medical textbooks.

Practical Procedures. Edited by Sir Heneage Ogilvie, K.B.E., D.M., M.Ch., and William A. R. Thomson, M.D. Practitioner Handbooks. Second edition. Cloth. 25s. Pp. 380, with 99 illustrations. Published on behalf of Practitioner by Eyre & Spottiswoode, Ltd., 14-16 Bedford St., Strand, London, W.C.2, 1952.

This book is one of a series of ready reference medical information for the practicing clinician. This edition, which follows by 14 years the first edition, has been thoroughly revised. New chapters deal with administration of antibiotics, hormone implantation therapy, practical procedures in gynecology, practical procedures in ophthalmology, examination of the throat and larynx, the technique of biopsy, the measurement and significance of gastric secretion, enemas and examination of the rectum, and immunization and vaccination. The various practical procedures used in clinical practice are presented in a simple manner, but with full attention to a description of details of performance and to the rationale. Each chapter is written by an expert in the field.

Detracting from the usefulness of the book to American readers is the use throughout the text of typically British terminology. In the chapter on blood transfusion, under the discussion of Rh factors, the British designations C, D, E, c, d, e, for example, will confuse most American readers unfamiliar with this usage. Although this is a useful collection of medical information, particularly for the general practitioner, this English edition will probably not enjoy wide acceptance in the United States.

Textbook of General Surgery. By Warren H. Cole, M.D., F.A.C.S., Professor and Head of Department of Surgery, University of Illinois College of Medicine, Chicago, and Robert Elman, M.D., F.A.C.S., Professor of Clinical Surgery, Washington University School of Medicine, St. Louis. Foreword by Evarts A. Graham, M.D., F.A.C.S. Sixth edition. Cloth. $12.50. Pp. 1154, with 558 illustrations. Appleton-Century-Crofts, Inc., 35 W. 32nd St., New York 1, 1952.

The present edition of this popular surgical textbook is extensively rewritten with the aid of 19 consulting authors, each experienced in the field of surgery. The contents have been well arranged and indexed so that medical students may proceed through fundamentals to specific surgical problems. The final chapter appropriately relates to military surgery. The textbook would prove valuable reading for physicians and surgeons alike. It will be a valuable book for medical students and will facilitate the teaching of surgery.

Congenital Dysplasia of the Hip Joint and Sequelae (in the Newborn and Early Postnatal Life). By Vernon L. Hart, M.D., F.A.C.S., Assistant Professor of Surgery, University of Minnesota, Minneapolis. Publication number 102, American Lecture Series, monograph in American Lectures in Surgery. Edited by Michael E. De Bakey, M.D., Professor of Surgery, Chairman, Department of Surgery, Baylor University College of Medicine, Houston, Texas, and R. Glen Spurling, M.D., Clinical Professor of Surgery, University of Louisville, Louisville, Kentucky. Division of Orthopedic Surgery, editor: Robert P. Kelly, M.D., Associate Professor of Surgery, Chairman, Section on Orthopedics, Emory University Hospital, Emory University, Atlanta, Georgia. Cloth. $5. Pp. 187, with 83 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1952.

This book is the last published work of the author, and as such it stands as a very definite contribution to orthopedic literature. The book is really a summary of the diagnosis and treatment of congenital dysplasia of the hip joint over many years. The author shows the results, which are frequently poor, of the treatment of this congenital condition of the hip in children who have not been given diagnoses or been treated until they have reached 2 to 5 years of age. In contrast with the older teaching, the author emphasizes the fact that congenital luxation or dysplasia of the hip joint may be recognized very early in life, particularly in the newborn and early postnatal period. He gives the tests and roentgenographic features of early recognition very clearly, so that early diagnosis not only can but should be made. As a matter of fact, the author almost made this subject a crusade throughout the years prior to his death, feeling that if early diagnosis and early treatment were instituted, disastrous results could be eliminated.

The views expressed by the author are not claimed as his own; he brings out the early teachings of Putti and the early treatment by Frejka and others. He is claiming nothing as his own contribution except the plea for early recognition and early, continuous treatment. This is a very readable book, not too long, and well illustrated. It should be of particular value to the general practioner and the pediatrician who see and examine infants immediately after birth or in the neonatal period.

Recommendations for Waste Disposal of Phosphorus-32 and Iodine-131 for Medical Users. U. S. Department of Commerce, National Bureau of Standards. National Bureau of Standards Handbook 49. Paper. 10 cents. Pp. 11, with 2 illustrations. Superintendent of Documents, Govern. Print. Off., Washington 25, D. C., 1951.

This pamphlet gives a description of the minimal precautions necessary for controlling the amount of radioactive iodine and phosphorus that can be disposed of by various procedures. The recommendations consider permissible concentrations from the point of view of safety of the general community and more especially of sanitation workers and sewage plant personnel. They further give rules for disposal practice, with a description of various techniques for minimizing the potential hazard. Consideration is paid to disposal problems in laboratories, hospitals, nursing homes, and private homes. Sample calculations are given that will enable the physician to estimate the hazard and thus make recommendations for disposal practices that will reduce the radiations to an acceptable amount, without going to extremes. The pamphlet will be very useful for physicians using, or contemplating the use of, these two radioactive isotopes.

Essentials of Dermatology. By Norman Tobias, M.D., Associate Clinical Professor of Dermatology, St. Louis University, St. Louis. Fourth edition. Cloth. $6. Pp. 596, with 189 illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1952.

This is a satisfying, authoritative, personal book, written in readable style with an economy of words. The commoner diseases of the skin and typical clinical pictures are emphasized, the uncommon and atypical disregarded. The book, in fact, is admirably suited to the first needs of the graduate student of dermatology. It should serve the practitioner satisfactorily, and even the medical student, although it may contain too many capsule-comments for the student. The classifications, however, are workable, the descriptions brief but authentic, and the treatment modern. The book is well illustrated in black and white, with six subjects in color, and the index is comprehensive.

Human Locomotion and Body Form: A Study of Gravity and Man. By Dudley J. Morton, M.D. With collaboration of Dudley Dean Fuller, Associate Professor, Department of Mechanical Engineering, Columbia University, New York. Cloth. $5. Pp. 285, with 82 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1952.

This book offers information about the anatomy and physiology of the foot. Part 1 deals with underlying principles of adaptation; part 2 with analysis of the walking stride. The latter part contains much material of interest, but the book as a whole is neither a complete nor a balanced presentation of the subject. It includes material that is intended to be of a generally biological or philosophical nature, to prove the importance of gravity as a designing factor, and this factor is assumed to lead somehow through the immense diversity of pedal extremities found in the animal kingdom to the human foot as a climax of the evolutionary process. Much of this reasoning is a *petitio principii*, instanced by the author's confusion of cause and effect (page 18) and his vague treatment of Wolff's so-called law (page 28). The insecurity of the factual basis of the reasoning is evidenced by the contradiction between page 48 ("30 degrees of out-toeing is . . . normal") and page 77 (where the data give 15 degrees as the normal angle).

The author is much occupied with the extent to which foot troubles may be explained by shortness and hypermobility of the first metatarsal bone and does not seem to understand what sort of data would be needed to prove a relation of this sort. The book can be recommended to orthopedists as a presentation of the author's side of a controversy and to physiologists as a review of certain data on human locomotion.

The Clinical Application of Antibiotics: Penicillin. By M. E. Florey, M.D. Oxford Medical Publications. [This volume, although a separate publication, is continuation of work described in Antibiotics Volumes I and II, and may be read in conjunction with it.] Cloth. $17.50. Pp. 730, with 115 illustrations. Oxford University Press, 114 Fifth Ave., New York 11; Amen House, Warwick Sq., London, E.C.4, 1952.

This volume is one of a series of publications that includes the monograph "Antibiotics," published in 1949, and a yet unpublished volume on the clinical uses of antibiotics other than penicillin. The 22 chapters fall into three sections. The first section deals with general considerations, such as the properties of penicillin, possible toxic effects of penicillin therapy, and methods of administering the drug. The other sections concern the treatment of diseases due to specific organisms, and the treatment of diseases, considered by systems. The book contains a 72 page bibliography, restricted largely to articles appearing up to the end of 1949. There is both a subject and an author index, and the book is very well documented with charts and illustrations. This encyclopedic volume should serve as a useful reference source for both the clinician and the research worker.

Fleas, Flukes & Cuckoos: A Study of Bird Parasites. By Miriam Rothschild and Theresa Clay. Cloth. $8.75. Pp. 304, with 125 illustrations. Philosophical Library, Inc., 15 E. 40th St., New York 16, 1952.

Parasitism, commensalism, symbiosis, and the origins of parasitism, with the effect on host and parasite, are discussed in a comprehensive manner in this book. The fleas, lice, protozoa, flies, and mites that associate themselves with birds are the ones the authors have found in England. The chapter on the fauna of birds' nests should interest any amateur naturalist. The final chapters are devoted to birds that are "parasites" on other birds for part of their existence, such as the cuckoo. The book is written for the amateur rather than for the professional parasitologist. An appendix, however, presents an extensive bibliography, together with an index of popular and scientific names.

Principles of Organic Evolution. By Arthur Ward Lindsey, Professor of Biological Sciences in Denison University, Granville, Ohio. Cloth. $5.75. Pp. 375, with 216 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1952.

This book presents a broad introductory survey of the field of organic evolution. Although designed primarily for college students, it should be of interest to anyone wishing to review the current concepts concerning the process of evolution. The text is clearly written and amply illustrated and contains a good index. There are selected references at the end of each chapter.

QUERIES AND MINOR NOTES

SENSITIVITY TO COLD

To the Editor:—*My patient is sensitive to cold. When he takes an ice tray out of the refrigerator his fingers itch and swell, or if he holds a cold glass of water in his hand the same thing occurs. Have you any advice regarding treatment?*

M.D., Alabama.

Answer.—This patient's condition corresponds to the condition of hypersensitivity to cold. At present, it is not considered a true allergy (antigen-antibody reaction) but rather a situation in which an excessive amount of histamine is liberated locally under the stimulus of low temperature. Treatment can be of two types. The antihistamines can relieve this reaction or prevent it if used about an hour prior to expected exposure. Various means have been suggested to improve tolerance to cold stimuli. Most of them have as their principle the systematic exposure to cold. One of the simplest is to place the hands and forearms in water of about 45 to 50 F (7.2 to 10 C) for about three to five minutes twice daily. If a reaction occurs, this is to be followed immediately by immersing the hands in warm water. If this method is too drastic in the particular case, water with a higher temperature can be tried at first. As a matter of fact, a recognized procedure is the use of baths, beginning with a fairly high temperature and decreasing the temperature from day to day. Histamine injections have also been claimed to increase tolerance to cold. The usual procedure is to begin with a 0.05 cc. dose of a dilution of 1:10,000, the dose being gradually increased each day. After about two weeks it can be given semiweekly. The maximum dose should be below the one that gives a pharmacologic reaction (flushing of face, headache) in the individual patient.

SNAKE BITES

To the Editor:—*The divergence of opinion in recent textbooks and articles regarding the treatment of poisonous snake bites leads me to request an additional opinion concerning the advisability of early application of a tourniquet, incision, suction and drainage measures and the use of cortisone or corticotropin (ACTH) and antivenin in the definitive treatment of poisonous snake bite.*

Howard Hansen, M.D., Baton Rouge, La.

Answer.—The wise course to pursue in the treatment of poisonous snake bite is to combine the time-honored empirical treatment of distinguished old medical practitioners with the fruits of the latest modern research on the subject of snake venoms. Of course, the rational therapy after a bite by a poisonous snake is to administer immediately an appropriate antivenin and then to treat the patient symptomatically. Health authorities and the medical profession in general should insist that antivenins be widely and easily available in most hospitals of the country instead of being available only in special pharmacies of metropolitan cities. If antivenin is not available on short notice, application of a tourniquet for brief periods is indicated, together with incision of the wound, and suction should be applied by the best means available. There is no objection to applying permanganate or sodium hypochlorite locally. Corticotropin and cortisone have not yet been proved useful in the treatment of snake bites. In every case of snake bite analeptic drugs, such as respiratory and cardiac stimulants, are always in order when the symptoms in the opinion of the attending physician warrant them. In cases of exaggerated fear suitable sedative measures should be used.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

PHYSICIAN EMPLOYED PART-TIME UNDER THE KEOGH-REED BILLS

To the Editor:—*Less than 20% of my income comes from salary as a county employee and the remainder is from private practice, as a self-employed person. Would I be eligible, if I chose, to participate in the proposed Keogh-Reed Bill pension program and retain the pension rights I have earned?*

M.D., New Jersey.

Answer.—Any person who receives 75% or more of his earned income as a self-employed person would be qualified to participate in the pension program under the provisions of the revised Keogh-Reed Bills (H. R. 8390 and H. R. 8391), which will be reintroduced in the 83rd Congress in January. It would be possible for the eligible person to exclude 10% or $7,500, whichever is the lesser, of his earned net income from current income taxation, even though his employment includes participation in a pension program. If he is aged 55 or over by Dec. 31, 1952, but not over age 75, he could exclude more than 10%, depending on his age, until 1972.

MILK AND HEADACHES

To the Editor:—*A 15-year-old boy who complained of headaches was advised by an ophthalmologist that his milk consumption, two to three quarts daily, was too high. Neither ingestion of less milk nor the use of spectacles has affected the headaches. Three years ago the patient had hemorrhagic nephritis. There are no known residual effects; the urine is normal, and the blood pressure is 130/80 mm. Hg. Is there sound evidence that large quantities of milk may be harmful?*

John W. Bradshaw, M.D., Ashland, Ore.

Answer.—It is evident that the three quarts of milk consumed daily by this 15-year-old boy did not cause his headaches. While milk is a good source of calcium, if consumed in the daily amounts mentioned it would probably curtail the intake of foods richer in protein, such as meat, eggs, and liver. Probably the greatest dietary need for a 15-year-old boy is foodstuffs rich in protein. For this reason, ingestion of large quantities of milk might be considered harmful indirectly rather than directly by some action on the body.

INTRA-ARTERIAL TRANSFUSIONS

To the Editor:—*In an intra-arterial transfusion, is the transfusion liquid directed in a direction opposite to that of the normal flow of the blood in the artery or in the same direction as that of the normal flow of blood in the artery? If it is directed in the same direction as that of the normal flow of blood, how does it help any more than would an intravenous transfusion?*

M.D., Arizona.

Answer.—The transfusion liquid is directed toward the heart, i. e., in the opposite direction to the normal flow of arterial blood. The reason is that the purpose of intra-arterial transfusion is to rapidly raise intra-arterial pressure. If the injected blood were directed peripherally, the result would be similar to that of an intravenous infusion.

VITAMIN E AND HEART DISEASE

To the Editor:—*Has vitamin E, given orally, proved of any value in the treatment of valvular heart lesions resulting from rheumatic fever? What precautions should be observed in its administration?* *Joseph J. Miller, M.D., Waynesboro, Pa.*

Answer.—Vitamin E given orally has proved of no value in the treatment of valvular heart lesions resulting from rheumatic fever. There was a happy subsidence a few years ago of the enthusiastic use of this drug for many cardiovascular conditions for which it has no real value.

BLADDER IRRIGATION DURING TRANSURETHRAL RESECTION

To the Editor:—*Some urologists use an isotonic sodium chloride solution to irrigate the bladder during transurethral resection of the prostate; other urologists contend that the use of an isotonic sodium chloride solution is not necessary and that its use prevents laking of the red blood cells, which partially results in obscuring the field of vision. Some patients apparently have died of lower nephron nephrosis following transurethral resection in which water has been used as the irrigating solution. Would the urologist be subject to a malpractice suit if a patient died following transurethral resection in which water was used?*

Ernest J. Stevens, M.D., Orlando, Fla.

Answer.—Clinical evidence would indicate that the use of water as an irrigating solution during transurethral prostatic resection may cause lower nephron nephrosis. Although the exact mechanism by which nephropathy is caused has not been determined, in all probability it is the result of intravenous reflux of water with hemolysis of red blood cells. It has been definitely shown that in the course of prostatic resection large prostatic veins are exposed to reflux of solutions in the bladder. It has also been shown that renal complications can be obviated by the use of a weak solution of either glucose or aminoacetic acid (glycine) in the bladder instead of water. Some urologists maintain, however, that renal damage will not result with water, provided overdistension of the bladder is prevented. In view of the difference of opinion among urologists as to the necessity for using weak glucose or aminoacetic acid solution for irrigation, a physician probably could not legally be held responsible if the patient died following transurethral prostatic resection in which water was used.

RETENTION OF URINE

To the Editor:—*A woman has retention of 200 cc. of urine after voiding. She has a bar of tissue crossing the bladder at the internal urethral orifice. Please advise the best form of treatment, the degree of incontinence to be expected after resection of bladder neck obstruction, and whether dilatation is permanently successful.*

A. A. Skemp, M.D., La Crosse, Wis.

Answer.—Retention of urine in women is observed frequently and may be caused by various factors. The possibility of a neurogenous lesion must first be excluded, and it is presumed that this has been done in this case. Cicatricial changes and hyperplasia of the tissues in the bladder neck are the commonest causes of urinary retention. In some cases, it may be difficult to detect much tissue change on cystoscopic examination. Apparently, definite pathological changes were found in this case. Transurethral resection of the obstructing tissue is the best form of treatment. This procedure may, however, be attended with some difficulties and may have to be done repeatedly before the retention is overcome. Care must be taken not to remove too much tissue or injure the muscles of the bladder neck, or incontinence will follow. This complication usually can be avoided if the resection is done in successive stages, with removal of small amounts of tissue each time. Postoperative incontinence will gradually disappear in most cases after the auxiliary muscles of control have become developed. In fact, total permanent incontinence seldom occurs. It is questionable whether dilatation of the urethra in such a case will be of much value. A plastic operation on the bladder neck is a better procedure.

DOG BITES

To the Editor:—*Should dog bites, especially in the region of the head, be cauterized with fuming nitric acid?*

M.D., Illinois.

Answer.—Authorities seem to agree that a thorough washing of a fresh wound with soap and water is as effective in removing the infected saliva as cauterization would be. Cauterization not only is painful but may leave a scar and will destroy only the surface infection. Rabies antiserum is reported to be effective and would, therefore, be indicated for cases of dog bites or other contaminated wounds in the region of the head.

POSTNASAL DRIP

To the Editor:—*May I add to your reply in* The Journal Sept. *13, 1952, page 166, to the query about postnasal drip? First it is important to ascertain whether the patient has a postnasal drip visible on examination or whether he has merely a sensation of a postnasal drip. The chief causes of chronic postnasal discharge are chronic sinusitis, especially when the ethmoid and sphenoid sinuses are involved; chronic hypertrophic rhinitis; hypertrophy of the posterior tips of the inferior turbinates; atrophic rhinitis, especially atrophic rhinopharyngitis; lymphoid hyperplasia anywhere in the epipharynx, mesopharynx, or hypopharynx, which includes such entities as granular and lateral pharyngitis, adenoids, and lingual tonsils; lingual varix; lingual thyroid; Thornwaldt's disease (inflammation of the lacuna or crypt of the pharyngeal tonsil with the formation of a cyst containing pus); patent thyroglossal cyst; allergy; elongated uvula; benign and malignant growths in the nose or epipharynx.*

To the foregoing, Proetz adds the following etiological agents: (1) central heating, resulting in suboptimal humidities; (2) smoking, which results in irritation of the nasal mucous membrane; (3) use of alcohol, which acts by dilating peripheral blood vessels, resulting in swelling of the mucous membrane and a consequent shutting off of the ostia; (4) thermal changes that produce vascular responses in the mucosa of the nose and pharynx, thus changing the amount and character of the secretions; (5) local mechanical abnormalities, which produce abnormal air jets and eddies in the nose; (6) dust and fumes, which have an irritating effect causing the secretions to become viscous; (7) bacteria, viruses, and fungi; (8) foreign bodies in the nose; (9) metabolic and eliminative disturbances, notably diabetes mellitus, nephritis, colitis, and constipation; (10) endocrine imbalances, especially hypothyroidism, in which the changes in the nasal mucosa parallel those of the hair and skin; (11) emotional disturbances, which may act to produce dryness of the pharynx and increased consistency of pharyngeal and nasal secretions; (12) excessive and prolonged medication, involving especially the use of vasoconstrictor drugs, notably cocaine, which produces passive congestion and altered secretions. Other drugs that may be responsible are those containing phenol, menthol, eucalyptol, and, especially, chlorobutanol.

George D. Wolf, M.D.
1075 Park Ave., New York 28.

To the Editor:—*In the two answers to the question on postnasal drip* (The Journal *Sept. 13, 1952, page 166), only one authority made even a passing mention of allergy. I discussed the problem in an article in the March, 1952, issue of the* Journal of the Missouri State Medical Association. *Frequently this complaint is secondary to allergic respiratory disease. In many of these patients, if eosinophilia is present in the mucous secretions and there is a familial or personal history of allergic disease, there may be dramatic improvement with careful allergic management.*

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1308 Bryant Bldg.
Kansas City, Mo.

CORTICOTROPIN AND RH-NEGATIVE MOTHER

To the Editor:—*I noticed in Queries and Minor Notes in* The Journal *Aug. 16, 1952, page 1515, your answer relative to the use of corticotropin in Rh incompatibilities. I refer you to an article on this subject in the* Southern Medical Journal *August, 1952, giving the experience of Dr. John B. Ross and myself with this drug in the treatment of the fetus in utero for this type of hemolytic anemia. It has been our experience that there has been a definite improvement with the proper dosage, although the control of this disease is somewhat more difficult than that of the ordinary acquired hemolytic anemias associated with a positive Coombs' test.*

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